

COMMERCIAL CAR JOURNAL

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Illustrated: Model 53 St. Paul Hydraulic Hoist with St. Paul Type BR Body

Webster Says:

pay load: Revenue-producing load which a vehicle can carry.

But what the dictionary doesn't tell is how many trips a dump truck can make in a day!

St. Paul Hydraulic Equipment is built to stay on the job with a minimum of time lost for repairs or replacements. The name ST. PAUL on the body tailgate or hoist cylinder means more pay loads, more revenue for the operator and more business for the dealer.

★

For further information, please see your St. Paul distributor or write:

ST. PAUL HYDRAULIC HOIST COMPANY

2207 University Avenue S. E.

MINNEAPOLIS 14, MINNESOTA

THESE THREE INTERNATIONAL K-7's HAUL MORE, FASTER FOR LESS

A Performance Report by Guden Bros., Inc., Linworth, Ohio

INTERNATIONAL K-7's are light-heavies. Guden Bros., Inc., bought three last June. They have placed a proposal to buy 10 more. Here is their Performance Report:

"Our Company hauls steel out of Wheeling, West Virginia, to Columbus, Ohio, and vicinity. The return is with finished products. The average payload is 13 tons.

"K-7's, pulling trailers that are 24 to 28 feet long and that weigh approximately 3½ tons, make the round trip of 320 miles on from 55 to 57 gallons of gasoline. Seventy-five miles are through mountains. This compares with about 80 gallons by

previous units that hauled payloads of approximately 10 tons.

"Average speed is 35 to 40 mph. A round trip, including loading and unloading, averages 18 hours, against 20 to 22 hours with the previous units.

"These new trucks were purchased June 15, 1944. Each has run approximately 35,000 miles. Maintenance averages \$30 per unit, excluding oil and grease. We are so well satisfied that we have given our proposal to purchase 10 more."

International K-7's (KS-7's with two-speed axle.) are powered by the famous International Blue Diamond Engine. They are outstanding examples of the efficiency of ample truck capacity and power—power to pull and climb smoothly at low cost; and they are examples also of the dependable International Truck performance that explains why more Heavy-Duty Internationals were sold before the war than any other make.

INTERNATIONAL HARVESTER COMPANY

180 North Michigan Ave. Chicago 1, Illinois



Owner: Guden Bros., Inc.
Linworth, Ohio

Three International Models K-7;
134-Inch Wheelbase

Engines: International Blue Diamond

Axle Ratios: 7.16 to 1 - Single Speed

Transmissions: Direct

Payloads: 13 tons, average

Fuel Consumption: 5.7 Miles per Gallon



New Trucks: The government has authorized the manufacture of a limited quantity of trucks for essential civilian hauling. International is building them in medium-duty and heavy-duty sizes. See your International Dealer or Branch for valuable help in making out your application.

INTERNATIONAL Trucks

COMMERCIAL CAR JOURNAL

Vol. LXVIII, No. 5, January, 1945

Washington Gloomaround

'Twas the week before Christmas, and throughout official Washington—particularly in the ODT—not a creature was stirring who reflected the traditionally merry spirit of the season. There was great need for the bending of elbows and the downing of cups of cheer to dispel an all-pervading gloom. The change in the war in Europe had compelled the War Department to readjust its plans and the pressure was on civilian agencies to cut down on their demands. It looked as if the Army were taking no chances and planning on another year of war in Europe. This was indicated by the decisions of the War Production Board with regard to trucks and tires for civilians in the months ahead.

187,467 Trucks for 1945

Instead of the 290,000 trucks requested for 1945, the WPB finally settled with the ODT for 187,467. Of this total, 90,287 units were scheduled for production in the first half. The Army let it be understood that, unless conditions changed, it would attack the third and fourth quarter schedules. The WPB schedule for civilian users for all of 1945 includes 35,904 light, 110,114 medium, 31,684 light-heavy, and 9,765 heavy-heavy trucks.

'44 Output 96,084 Trucks

While this schedule of 187,467 trucks is disappointing, it still is an improvement over the 1944 civilian schedule of 101,298. Moreover, it is almost twice the actual 1944 civilian truck production, estimated by WPB to be 96,084 units. Taking actual figures for 11 months and estimating December WPB's 1944 production figure includes 70,684 medium, 18,943 light-heavy, and 6,457 heavy-heavy trucks. Looked at another way, almost as many trucks (90,287) are scheduled to be produced for civilians in the first half of 1945 as were produced (96,084) in the whole of 1944. It's something to be merry about.

20,000 Trailers in '45

Trailer production scheduled by WPB for civilians in 1945 will approximate 20,000 units. This is



Gloom in Washington . . . 187,467 Trucks for 1945 . . . '44 Output 96,084 Trucks . . . 20,000 Trailers in 1945 . . . Only 978,000 Tires for Trucks in First Quarter . . . 8.25 Up Quota 330,000 . . . Second Quarter Outlook Better . . . Battle for Batteries . . . Union Trouble

by **GEORGE T. HOOK**

well under the 1944 program of 26,011 trailers, and lower than actual 1944 production of 22,500 trailers.

978,000 Tires in 1st Q.

Because it has been chewing up truck tires in the European theatre of operations beyond all expectations, the Army had found it expedient to ignore ODT's estimate of civilian tire requirements for the first quarter of 1945. ODT asked WPB for 2,241,889 replacement tires of all sizes for ci-

vilians in the first quarter. WPB's preliminary estimates indicated that less than 1,000,000 would be allotted. The preliminary estimate was for 978,000 tires in the first quarter, broken down as follows: 8.25 and up, 330,000; 7.50 and down, 648,000.

8.25 Up Quota 330,000

The first quarter tire allotment of 978,000 was 166,000 tires under the actual distribution in the fourth quarter.

(TURN TO NEXT PAGE, PLEASE)



(CONTINUED FROM PAGE 35)

ter of 1944, and 53,000 under the actual distribution in the first quarter of 1944. Actual distribution of tires in sizes 8.25 and up was 372,000 in the fourth quarter of 1944. This was over 10 per cent better than the announced quota. It is ground for hope that the first quarter quota of 330,000 will be exceeded. At any rate, the quota alone assures civilian operators of more tires in the critical 8.25 and up sizes than they got in the first quarter of 1944, when only 256,000 such tires were delivered.

2nd Q. Outlook Better

The tire outlook for the second quarter of 1945 is considerably better than for the first quarter. A tire industry forecast, based on expectations of greater production because of a supply of manpower, the 7-day week, and new plant capacity, has given WPB cause to hope that it can allot 1,500,000 tires for civilians in the second quarter, of which at least 500,000 would be 8.25's and up.

Trucks Down Still 2%

ODT is counting heavily on tire production increases to safeguard civilian truck operators from a serious situation that might otherwise arise during the summer months of 1945. The winter months are not so hard on tires and ODT thinks it has some indication of this in the reports of trucks out of service for lack of tires in the 8.25 and up sizes. During the last few months trucks reported out of service for want of tires have held to a monthly average of around 2 per cent of the total number of trucks operating with 8.25 and up tires. Unless more such tires are provided ODT fears that the summer months of 1945 will play havoc with over-the-road operations.

Conservation Pressure

For this reason ODT is inclined to tighten up on the rationing of tires to essential operators. It may ask truck tire rationing boards to consider applications in the light of the applicant's cooperation with the ODT in its various conservation efforts, particularly joint-action plans and traffic registration. It is argued that conditions call for the application of just this sort of pressure to get greater conservation of tires and equipment, and thus help some operators in spite of themselves. ODT contends that the operator who cooperates certainly deserves more consideration in the matter of tires than the operator who doesn't.

Battle for Batteries

The Army's readjustment was also jeopardizing ODT's rehabilitation program (component units) and certain replacement parts. The Army was said to be raiding engine plants and making demands for lead and copper which, if allowed by WPB, would affect battery and engine bearing production. (The Army wanted the lead and copper for its stepped ammunition program.) ODT was also fighting WPB to retain the current home-front allotment of tetra-ethyl lead for premium grade gasoline. In this case it had the support of the Army and the chances were fair that civilian gasoline would not be further degraded. The ODT was putting up a battle on lead and copper but the outlook for "holding the line" was not bright.

Component Unit Program Hit

ODT's Maintenance Section was particularly concerned about its rehabilitation program. WPB had placed three men in each of the independent engine plants and they were there to see that the Army and Navy

programs were met. There was a fear that interference with production schedules would so disrupt manufacturing as to seriously affect the civilian program.

Union vs. Government

The ODT had union trouble on its hands, too. Livestock haulers in the Mid-West had reported that unionized employes on the Government-operated truck lines had refused to load their trucks with freight registered under the terms of ODT's traffic registration order. The livestock trucks, it seems, were driven by non-union men. ODT was concerned, it appears, not so much because its conservation order was being scuttled by the union as because the action constituted interference with a Government operation. Attorneys were in a huddle on the matter and a direct appeal was made to union headquarters in Indianapolis.

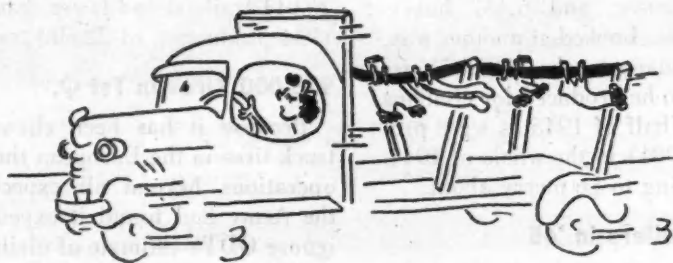
"Steamboat" Blows Whistle

ODT's Director "Steamboat" Johnson is reported to have blown the whistle on district managers for sending so many appeals to Washington that have to do with the denial of route changes and extensions in private truck operations. In a staff meeting he is said to have wondered out loud if the men out in the districts ever said "yes" to any of the applications. It didn't seem logical to him that all of the applications could have been lacking in merit. No formal instructions have been issued but it is understood that the regional directors have been apprised of "Steamboat's" sentiments and that is tantamount to being ordered to say "yes" once in a while.

ODT District Officers OK

In other respects, however, industry feels that the district offices of the

(TURN TO PAGE 144, PLEASE)



F. Cunningham

Editorials

The Problem of Postwar Public Relations

THE motor truck has been recognized as a vital instrument in the forging of victory. As a means of military supply it has proved indispensable. On the Burma Road and on the Persian Route into Russia the motor truck played a heroic role in hastening victory. More dramatic and more recent was its magnificent contribution on the 700-mile Red Ball Express Highway, the operation of which was described in detail in last month's issue. In announcing discontinuance of this operation and transfer of the trucks to points nearer the fighting front, the Army had this to say:

"Credit for exploitation of the break-through of U. S. Armies in the St. Lo area goes to the officers and men who operated this truck line. As the Armies bolted forward, Red Ball stretched like a rubber band until the short haul from Normandy to Brittany had expanded into a three-day journey over roads pock-marked with bomb craters and through towns smoldering with the ashes of battles not yet finished."

The swift advance of our Armies was made possible by motor trucks.

In the period following the last World War truck transportation on the home front also expanded like a rubber band. It, too, advanced in spite of the regulatory pock-marks and bomb craters strategically strewn by enemies of the motor truck. But what of the future?

The first World War gave truck transportation an impetus which enabled it to make rapid strides in the

quarter century that followed. The public attitude toward the motor truck in that period has not been an enlightened one. In a few states the attitude has been progressive; in most it has ranged from tolerance to uncompromising restrictions. In no state, and in no area, has the truck been encouraged to realize its full stature in order to contribute its real potential to the industrial, social and economic welfare of the nation. Will the second World War provide the impetus to change all this? Will the boys who are fighting all over the world come home with a greater respect for motor trucks, born of intimate experience? Will this attitude be transmitted to legislative representatives and result in the passage of legislation that will enable truck transportation to attain its potential stature?

It's a possibility. But it must be nourished and developed carefully, wisely and intensively. There's not a chance that it will miraculously come to pass. It would not do to hope for spontaneous combustion of the voting population.

But the seed will be there to be nurtured; the fuel will be there for the application of the right amount of pressure to transform it into a propulsive force.

Size & Weight Program

But first of all there must be a program on which all truck interests are agreed and on which a concentrated job of promotion can be done. It won't get us to our goal for the So-

ciety of Automotive Engineers to advocate one set of size and weight standards, the Automobile Manufacturers' Association a second, the American Trucking Associations a third, the Pennsylvania Motor Truck Association a fourth, and the Eleven Western States a fifth. This is confusion compounded. The Association of American Railroads could not possibly devise a better way of confounding the ordinary citizen or even the extraordinary legislator.

The first job is for the truck industry's elements to get together and to formulate a program that can be put before the people and the legislators and the regulators of the United States. To be sold they must be told. Recommendations for changes won't win many supporters if the "whys and wherefors" are not clearly and pointedly reasoned.

Changes in size and weight regulations are a postwar project that should be started right now.

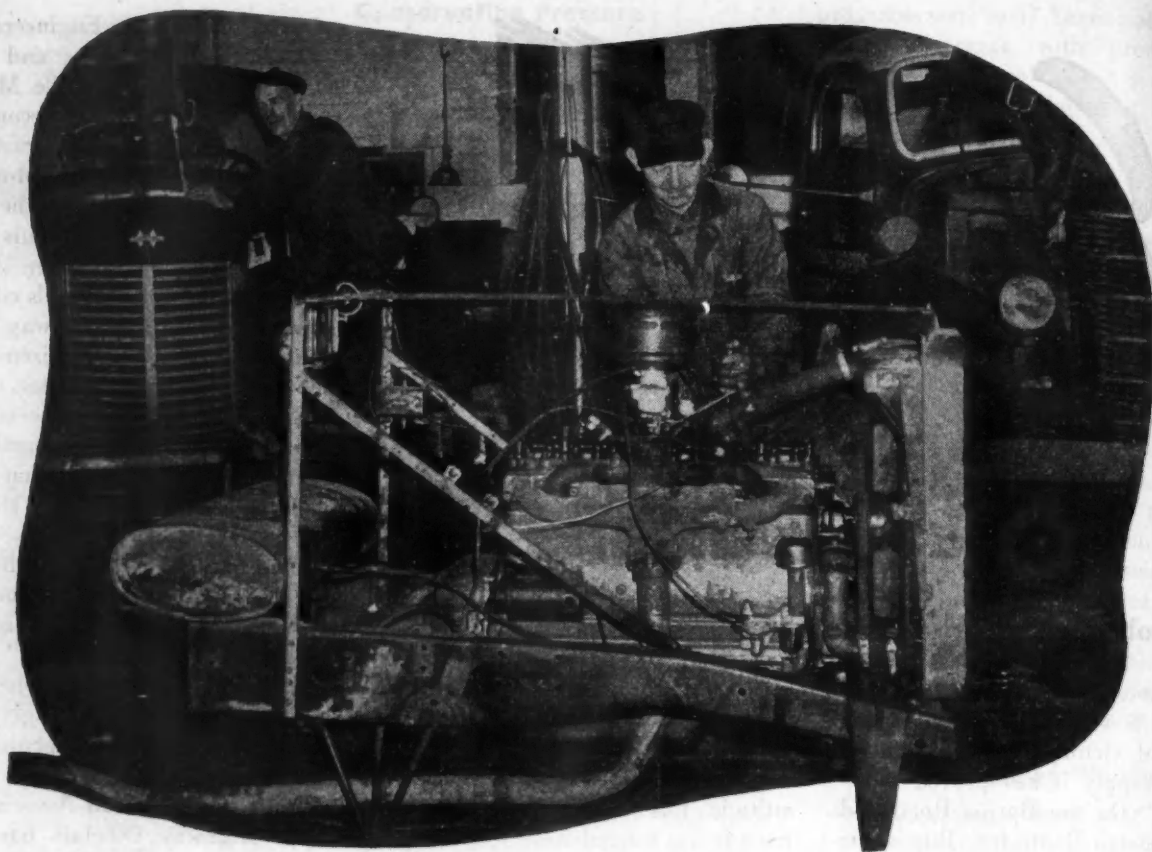
Even the American Association of State Highway Officials has recognized that postwar changes in size and weight laws will be necessary in line with the three billion dollar highway construction program approved by Congress. It has directed its executive committee to arrange for a thorough study of such regulations with the end in view of recommending uniform limits for interstate trucks and buses.

The AASHO will need the views of truck operators and of truck manufacturers if its study is to be "thorough." And certainly before getting together with the highway officials, truck operators and manufacturers ought first to get together themselves and agree upon a program that can be advanced as a truck industry program.

What is equally important, the spokesmen chosen to represent the truck industry should be of a calibre able to argue the merits of the industry's proposals and win the respect and confidence of highway officials, who at the present time are reported to be bitter at the tactics of truck operators in various states.

Clap Down on Clip Joints

THE Office of Price Administration is now engaged in a campaign to uncover used-car price ceiling violations (TURN TO PAGE 148, PLEASE)



Home-Made

Test Stand

Jumps Engine Life 25%

Smoother and more efficient initial operation, more miles between overhauls and lower costs result from engines run-in on a simple frame made of scrapped parts

by P. W. LEWIS

Owner, Grand Rapids Motor Express, Grand Rapids, Mich.

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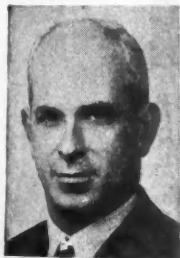
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A SMOOTH MAJOR OVERHAUL SETUP

"We originally had to overhaul our engines every 6 months. Now the intervals average 8 months . . . We attribute this improvement to the fact that engines broken in on the test stand are less subject to damage from too much speed or hard pulling over hills. . .

"Our drivers feel more confident . . . with trucks equipped with units that have had careful tuning on the stand."

The author's statements show that run-in, pre-tuned engines not only give better service but also reduce the amount of major repairs in his shop. But, the story doesn't end there. This fleet operator follows up his advantage. For example, he has extra run-in engines on hand ready to install in the next truck slated for an overhaul. Consequently, Grand Rapids trucks never are long out of service.



P. W. Lewis

any two- or three-day idle period of a truck amounts to a sizable loss of revenue.

After considerable thought we have found a solution to this problem in our new program of breaking overhauled engines on a testing stand instead of installing them in the truck and breaking them in on the road.

Our procedure of engine overhauling is to install new rings and grind valves the first time and, the next time, put in new sleeves and rings in addition to grinding valves. We check all bearings carefully and put in new ones where necessary.

We find that when an engine is taken apart, particles of dirt are loosened. Because they may plug the oil lines overhead, we get rid of this destructive factor before the engine is put into active road service. It saves a lot of needless work later, and prevents wear and tear.

We install the overhauled engine in a home-made frame constructed of discarded chassis parts. As nearly all of our trucks are of the same make, the frame accommodates most of our engines. Then the engine's accessories, including the generator, starter, battery and fuel pump, are connected. Next, the testing stand's cooling system is hooked up, and the exhaust manifold is bolted

to the pipe which extends outside. Then the engine is started.

The first stage in the breaking-in plan consists of checking for unusual noises, oil pressure and overheating. During this time a careful watch is kept for oil leaks and unusual functioning of any unit. After a short time the engine is stopped, and valve clearance is checked. A compression test is taken to determine if rings have seated properly. The engine is then started and run again. During this time similar inspections are made. The overhauled engine will run as much as 20 hours before we consider it properly broken in for on-the-road use.

We arranged to stock extra engines, so when it is necessary to remove an engine for overhaul, we have another one ready to put in for over-the-road use. When a truck with defective engine comes in in the morning, the newly rebuilt unit is installed during the day. This is an average 6-hour job. The truck is ready to take out its payload again that night.

Under this plan no regular schedules are disrupted. Time and mileage between major engine overhauling jobs has increased appreciably. For example, we originally had to overhaul each engine about every six months. Now the intervals average eight months, an increase of at least 25 per cent. We attribute this result to the fact that engines which are broken-in on the stand are less subject to damage from too much speed or heavy pulling of loads than when broken in on the road.

Our drivers feel more confident, and prefer to handle the broken-in engine.

Before the war our PM program included more frequent check-ups with more minor repairs between the

(TURN TO PAGE 110, PLEASE)



Interior of Freightway's "742"—"Rolling Repair Shop"—and Bill Severin, its operator. Another view of "742" is on opposite page

A Repair Shop 150 Miles

Mechanic with one-ton truck provides 24-hr. road service, eliminates towing.

CONSOLIDATED FREIGHTWAYS is doing a great job in pushing its wartime schedules through with a minimum of delay due to road breakdowns. With the new "Rolling Repair Shop"—a light truck equipped to repair road failures of "Freightliners" within a 150-mile distance, approximately, of the several CF stations and terminals at which such portable shops are maintained—many hours are being clipped from Con-

solidated Freightways' schedules which otherwise would be added due to delay occasioned by going out after a truck, towing it in, repairing it, and sending it out on its way again.

"No. 742" is the "Rolling Repair Shop." It is a remodeled job, converted from a 1-ton truck into a 1½ with dual wheels, and maintained at the Portland, Ore., CF terminal. Along with other rolling repair shops main-



by GIBBONS CLARK

SUPER ROAD SERVICE

Road calls always have been a major problem in fleet operation. Not only do they cut in on work in progress in the shop but, usually, a considerable vehicle time loss also is involved.

Consolidated Freightways found a happy solution to this problem in what it calls a "rolling repair shop"—a converted truck equipped with all necessary tools, shop equipment and parts. A full time, all-around mechanic virtually lives with the shop. He takes it home with him at night but remains on call at any hour.

Two principal advantages are claimed for the rolling repair shop. First, it saves time in returning the vehicle into service. Second, it eliminates towing costs. The facts outlined in this article, are worth detailed study.

"742" goes, Bill goes, too—day and night. He takes the rolling repair shop home with him nights and, should there be a road failure call, Bill jumps into his overalls and dashes off to the scene of the emergency.

Pete Lewis, acting assistant general freight agent in Portland, says that the company has found two things to be necessary as qualifications for a rolling repair shop driver's job. These are resourcefulness, and a rugged constitution. Bill Severin has plenty of both. He's an expert mechanic and is plenty rugged enough to "take" the night driving and the long hours of work under trying conditions which are so often encountered in the repair of emergency breakdowns.

Bill is somewhat of an individualist, for he never takes another mechanic with him on repair calls. The general practice is to have the driver help him, where two men are needed on the job.

Equipment, parts, and supplies carried in "742" include a complete stock of gaskets, piston rings, wheel bearings, connecting rods, and other miscellaneous standard parts. Lewis says that standardized equipment has cut down a great deal on the parts carried. "742" also carries a complete stock of motor oil, castor oil, transmission grease; a complete welding and cutting outfit, a chain block, and a CF-patented device for lifting rear ends.

An outstanding feature of the rolling repair shop is a canvas hood, attached to the rear of the repair truck, and arranged to form a tent over the motor of the truck being worked on. CF has found that this canvas hood is of inestimable value in bad weather. A 6-volt wiring hook-up with an outlet at the rear of the truck provides the mechanic with adequate light on the job.

According to Consolidated Freightways' records, "742" makes an average of 15 calls each month. CF tries to keep the call mileage down to under 100 miles per call but, so far, this has not met with success, the approximate average mileage at present being about 150 miles to the call. Some calls bring "742" as far as 200 miles from Portland. The total road mileage is figured at about 2250 miles each month.

The approximate 150-mile call limitation is due to the maintenance of rolling repair shops throughout the CF system. CF stations and terminals maintaining rolling repair shops are Spokane, Seattle, Wash.; Boise, Idaho; Oakland, Calif.; Portland, Grant's Pass, Ore.; Billings, Mont.; Salt Lake City, Minneapolis, and Chicago. All rolling repair shops are not as yet up to the standard of Portland's "742" but, according to Pete Lewis, it is the aim of CF to bring all rolling repair shops up to such standard.

CF's Portland office has kept no actual case studies on
(TURN TO PAGE 158, PLEASE)

Long

saves time and money

tained at Consolidated Freightways' stations and terminals throughout the company's entire system of operation, "742" is ready to roll, day and night, and take care of all major road failures.

Styled along the same lines as its big brothers—the CF Freightliners, "742" is the baby of the Portland terminal, and under the affectionate care of Bill Severin, veteran CF mechanic at Portland since 1935. Everywhere that

\$5



SHOP & SALVAGE

Hints

1. Converted Water Pump

by Budd Shaulis

Continental Baking Co., Norristown, Pa.

We have solved our problem of leaking water pumps on Fords by making a packless pump in the manner described below.

Remove the fan blades and key, and push impeller shaft out of housing. Wipe off the face of bushing and replace fiber washer between bushing and impeller with a new one. Replace shaft in housing, and, on the other end of the shaft, place a fiber washer No. 8513, as shown in the diagram. Now drive a $\frac{1}{2}$ in. washer over the $\frac{5}{8}$ shaft so that it will ride against the fiber washer. (Make sure that it does not rub against the pump housing as it will be slightly cupped.)

Procure two cone-shaped Ford water pump springs, No. 688560, and place both over the front end of the shaft, with the large end of the spring in the hub. Replace the key, fan,

and tighten the nut. There now should be spring tension against the fiber washer inside the impeller, which will make the seal.

This operation requires no expensive new parts, and scored shafts will work as well as new ones because the seal is made at the rear end. It also saves wear on fan belts because the pulley has no free play. Our trucks equipped with this type pump have

Commercial Car Journal will pay \$5.00 for acceptable shop hints and \$5.00 for parts salvage tips. Send in as many ideas as you have to the editor. Don't underestimate your ideas.

Let the editor be the judge. A photograph or a rough sketch and simple explanation in your own words are enough. CCJ will polish them up for publication.

not leaked from bad seals in two years of operation.

2. Valve Seat Insert Removal

by Claire E. Ellsworth
Ellsworth Sales Co., Eagle Grove, Ia.

I had a set of hardened valve seats to remove recently. They had no relief under the rings in which to insert a puller, and getting them out was a problem.

Every mechanic develops his own particular technique in doing a job, even though general procedures are standardized. Frequently he originates a time-saving short cut. Here are six men who share their short cuts with fellow workers and are repaid in cash for their contributions.

1. Converted Water Pump
by Budd Shaulis
2. Valve Seat Insert Removal
by Claire E. Ellsworth
3. Extended Punch and Chisel
by Frank J. Zeravesky
4. Choke Linkage Salvage
by Budd Shaulis
5. Grille Substitute
by Frank Seffchick
6. Emergency Ignition Coil
by S. C. Pique
7. Freeing Brake Cables
by J. H. Wilkie

I set the electric welder at 125 amps., placed a small steel plate across the top of the opening to keep the arc from pitting the top of the block, and spotted a lug on the insert seat angle. I then set a 6-in. bar under the lug and struck the bar sharply with a hammer. The insert popped out of the block quite easily.

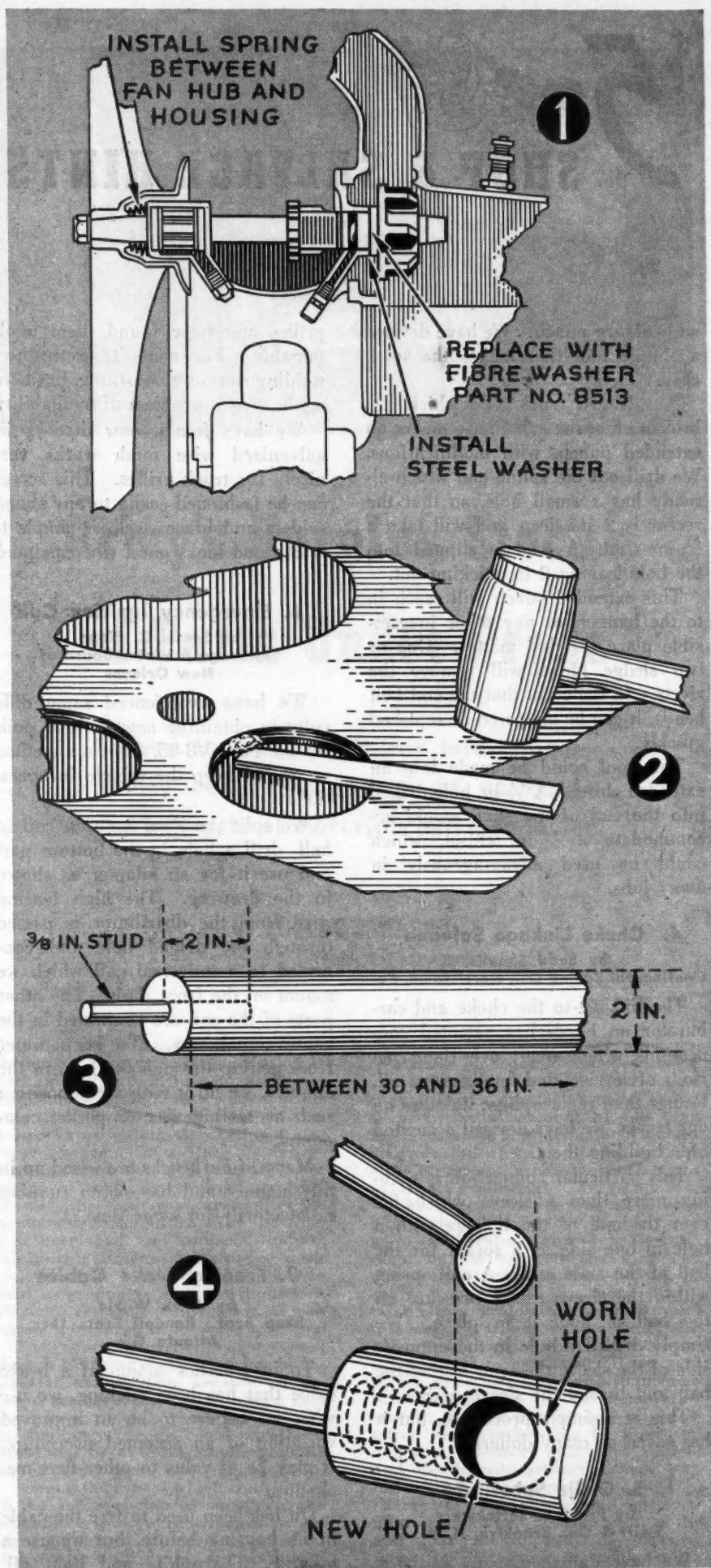
It takes less time to remove the whole set than it does to tell about it, and nothing is damaged in any way.

3. Extended Punch and Chisel

by Frank J. Zeravesky
International Harvester Co.,
Allentown, Pa.

When a mechanic has to replace a front spring rear hanger, he has a hard time punching out the rivets where the hanger is mounted to the frame. Everything is usually dirty, and there is not enough space to swing a hammer to hit the rivets with

(TURN TO NEXT PAGE, PLEASE)



\$5

SHOP & SALVAGE HINTS

an ordinary punch. We have devised a simple tool that makes the work easy.

A salvaged truck axle which has broken off at the axle flange makes an extended punch, with modifications. We drill out the spline end which already has a small hole, so that the recess is 2 in. deep and will take a $\frac{3}{8}$ -in. stud. A stud is slipped into the hole leaving 2 in. sticking out.

This extended punch will reach in to the hanger, or any other inaccessible place for that matter. One or two sledge blows will remove the rivets. In the event that the end bolt bends, it can be tempered or replaced quickly.

This tool could be made into an extended chisel. A $\frac{1}{2}$ -in. hole drilled into the end of the shaft would accommodate a $\frac{1}{2}$ -in. chisel, which could be used advantageously in many jobs.

4. Choke Linkage Salvage

by Budd Shaulis
Continental Baking Co., Norristown, Pa.

The linkage to the choke and carburetor on Fords has patented connections which wear, over long periods of service, and finally come off. Rather than replace these linkages on our trucks, we have devised a method of rebuilding them.

This particular connection is nothing more than a sleeve which fits over the end of the linkage with a hole in one side as a socket for the ball of the male arm. A coil spring within the sleeve exerts pressure on the ball to hold it in place. We simply drilled a hole in the opposite side of the sleeve the same size as the ball and turned the sleeve over.

This is a simple procedure, but it has saved us many dollars.

5. Grille Substitute

by Frank E. Seftchick
Swift & Co., Brooklyn, N. Y.

We have damaged many radiator

grilles and have found them unobtainable. For some time we used welding rods as a substitute, but here, again, was a problem of availability.

We have found, now that $\frac{1}{4}$ in. galvanized wire mesh works very nicely for truck grilles. This screen can be fashioned easily to any shape, solders and brazes well, is simple to attach and looks good when painted.

6. Emergency Ignition Coil

by Sessel C. Pique
Sewerage & Water Board of
New Orleans

We have experienced some difficulty in obtaining new ignition coils for the Ford V8-85. Here's a method we use to keep the vehicle in operation.

We split the Ford ignition coil in half, drill a hole in the bottom part and use it for an adapter as shown in the drawing. The high tension wire from the distributor is passed through the drilled hole and connected to a universal coil which we mount on the front dash. The other posts of the coil are connected in the conventional way. To keep water from getting through the hole in the adapter, we fill it with a composition such as sealing wax or gasket compound.

Many of our trucks are wired up in this manner and have been running satisfactorily for some time.

7. Freeing Brake Cables

by J. H. Wilkie
Shop Supt., Randall Bros., Inc.,
Atlanta, Ga.

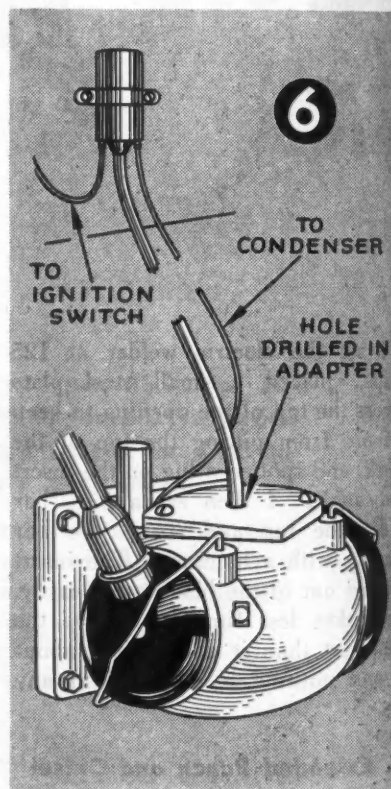
To insure slick action of a brake cable that has been sticking, we use what we believe to be an improved variation of an accepted procedure. It may be of value to other fleet mechanics.

Oil has been used to free the cable in its housing before, but we use a mixture of graphite and light oil.

(CONTINUED FROM PAGE 43)



$\frac{1}{4}$ INCH GALVANIZED SCREEN



This paste is applied to the cable with a brush. It can be worked throughout the housing by sliding the cable back and forth. The oil will dry eventually, but the graphite will remain for many miles of satisfactory service.

Members of the Senate War Investigating Committee. Left to right: Sen. Homer Ferguson; Sen. Harold Burton; Sen. James Mead, chairman; Sen. Carl A. Hatch and Sen. Owen Brewster



Army's Surplus Stocks of Parts Under Probe

Failure to label parts for interchangeability results in charge of confusion and of waste of materials and manpower

by **EUGENE J. HARDY**

Commercial Car Journal, Washington Bureau

Citing the example of the Army Ordnance Department in reducing a total of 17,000 different identification numbers for motor vehicle bearings to 1500, the Mead Senate Committee Investigating the National Defense program in a Dec. 19 report recommended this performance as a means of avoiding accumulated surpluses. The committee urged that interchangeability information be further developed and utilized, thereby minimizing procurement, paper work and physical handling. Tribute was paid to producers and distributors in all fields for their contribution of materials and supplies to the war effort.

The report, sharply critical at points, though excusing many mistakes in industrial mobilization because of demand for speed, strongly implied that manpower shortage and lags in war production programs could have been prevented or at least ameliorated by better Army and Navy management.

Among the causes which contributed to the accumulation of surpluses, the committee said, were changes in design; failure to standardize specifications more universally; duplication of procurement programs; keeping pro-

duction lines going although adequate stocks are on hand so that productive capacity will be available at a future time, when a greater demand is anticipated; establishment of too high levels of stock; inadequate inventory control; failure to recognize and declare as surplus useless accumulations of obsolete material.

The committee recommended that like articles be further standardized as to specifications and their procurement be further centralized in one procurement agency; that buying of spare parts should be more direct, eliminating middlemen's profits and unnecessary transportation and handling (additional cost of indirect buying was said to be almost 50 per cent of the price which the end item manufacturer pays to the parts manufacturer); that the handling of transportation and warehousing be improved and that inventory and stock control and the liaison between offices stating military requirements, offices in charge of inventories and procurement offices must be improved, to the end that modification of procurement and declaration of surpluses can be speeded up.

DESPITE previous Army and WPB assertions to the contrary, current investigations of the Senate War Investigating Committee, formerly headed by Vice-President Elect Harry Truman, are beginning to turn up tremendous Army surplus stocks of automotive replacement parts and other equipment.

The first inkling of the shape of things to come was brought out at a hearing before the committee on Nov. 29. This hearing, prefaced by several closed sessions with Army officials and preliminary investigations dating back to April, 1944, was supposed to bring out the facts behind the Army's policy of buying replacement parts from vehicle manufacturers rather than directly from the parts manufacturers.

While the 17 Army officers and several War Department civilian officials, including Julius Amberg, special assistant to the Secretary of War, present at the hearing did a fair job of justifying procurement policy they did not seem to convince the Committee of the wisdom of their methods in carrying out this policy.

The Committee charged the Ordnance Department with failure to label parts so they can be used interchangeably. According to the committee the purchase of parts from vehicle manufacturers results in thousands of different numbers for the same item, confusion, waste of manpower and unnecessary surpluses.

For example, the present system of procurement has resulted in the Ordnance Department purchasing bearings carrying a total of 15,000 different numbers, while actually there are only 1700 different kinds. Committee officials pointed out that this can only lead to huge postwar stocks of surplus bearings.

The Army officers present told the Committee that the national stock of parts is surveyed every three months, but did not present any of the findings of the surveys. Brig. Gen. Walter P. Boatwright, Commanding, Office Chief of Ordnance—Detroit; Brig.

(TURN TO PAGE 148, PLEASE)

THE



Gripe

DEPARTMENT

For Mechanics, Foremen, Superintendents, Supervisors—in fact all connected with the maintenance and operation of fleets, who want designers to give more thought to making post-war trucks easier to maintain and repair and less costly to run

COMMERCIAL CAR JOURNAL WILL PAY

FOR EVERY GRIPE PUBLISHED

AND each month one of the Gripes will receive an extra award of a

\$10

\$25

WAR BOND

READ . . . the letters on this page and you'll get a clear idea of what it's all about . . .

THEN . . . pull out a sheet of paper and, for gripe's sake, gripe and get paid for doing it!



Radiators, Timing Jacks and Brake Cables

**THE GRIPE DEPARTMENT,
DEAR SIR:**

I would like to add the thought that from your "gripe" column many constructive and substantial ideas will develop that the car and truck manufacturers will take advantage of.

With new postwar vehicle being contemplated by some concerns, now is the time for fleet owners to advance their opinions on what should be added, or deducted, to make a vehicle that relieves the owner from many inconveniences and allows him more time for his regular business.

The person who steps into a car or truck, drives it and then leaves it, says, "Boy, what a swell job." Sure, but let him try to properly, quickly and economically service or repair that same car and "wow" does he "gripe"?

Maybe the radiator leaks—must be removed for repair. He starts with the fine, highly polished exterior—leaves a few scratches and finally gets it off. The fan is very close to the radiator and that must be removed. Yep, here is some more sheet metal and bolts and screws, maybe spot-welded.

Wouldn't it be great if we could lift the hood, loosen two nuts and pull the core. With more room allowed at the front of the engine compartment, this could easily be done.

Oh yes, the firing order is a little off. Now where is that hole in the fly-wheel case for timing? How simple for the manufacturer to mark it *plainly*. The headlight and other wire connections could easily have been the snap-on type. Much time could be saved here. We also find the battery cable laid in the same old place, smack across a chassis member with a little piece of loom around it, which in time will wear through and cause a grounded short. Why not in a con-

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AND
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BOND**



"The Gripe Department" invites fleet mechanics and all others connected with fleet maintenance and fleet operation to send in their gripes. For every griping letter published in this department, COMMERCIAL CAR JOURNAL will pay \$10. In addition, the best letter each month will receive a \$25 War Bond. The choice of letters for publication and for the War Bond will be made by the Editors of COMMERCIAL CAR JOURNAL. Their disposition of letters will be final. Choice will be determined by the content of the letters and not by style of writing or appearance.

Here is a chance for every fleetman to tell the designers of post-war trucks what is wrong with trucks as they have been built and how post-war trucks should be designed to cut down maintenance time and maintenance costs.

Here is every fleetman's chance to get his ideas over to all of the big shots in the truck industry; presidents, sales managers, engineers and servicemen.

Here is an opportunity for fleetmen to influence post-war truck design along lines that will make their jobs easier and more pleasant.

Address your letter to THE GRIPE DEPARTMENT, COMMERCIAL CAR JOURNAL, PHILADELPHIA 39, PA.



Wasteful Drain Cocks

THE GRIPE DEPARTMENT,

DEAR SIRs:

For a long time I have griped and grumbled to myself and my shop assistant about the inaccessibility of the drain cocks on engine and cylinder blocks, but today this is more than a gripe or an inconvenience to me. It is a cause for waste of vital material, time, etc.; in fact, a waste of material that is almost unobtainable today.

Why don't car and truck manufacturers devise some type of drain that will enable us to reach it without getting scorched on a hot exhaust and then have the water and anti-freeze run all over creation? It is now impossible to catch this fluid in a vessel as it runs out the sides and ends of the dust pan, messes up the floor, ruins our dispositions as well as wastes this important and vital material. The draining ought to be through a very accessible drain and one that is usually under control and does not spout over everything nearby. The remedy is simple. It evidently has just not been considered.

I feel better now after draining myself of this gripe.

F. H. SHERRILL,
Fleet Maintenance,
Coca-Cola Bottling Co.,
Asheville, N. C.

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duit built-in and large enough so the cable can be removed easily if necessary?

And does the driver have his troubles! He has a flat tire and proceeds to haul out the jack. And what does he find? Yep! a bumper jack that he is afraid to use or one that has such a small base that it gives the jack no solid or safe support and a very small head. Let's have a good, substantial jack with a suitable base and a jack plate under the rear that bears directly on the car chassis—not the bumper.

And when—oh when!—are we, the people who live in the colder part of this good old country of ours, going to be relieved of putting 'em on and taking 'em off? No, not heavy underwear but frost shields. In this modern day and age and engineering feats surely a permanent frost eliminating windshield can be developed. The present-day frost shields are a hazard, expense and annoyance to the truck and car driver. We have the hot-air ducts to the lower part of the windshield but other gadgets are being used to complete the job and give "all vision" results. A built-in, air-spaced windshield, giving clear vision winter and summer, in all parts of the country will win the hearty thanks of thousands of fleet operators and car drivers.

And it sure gripes a mechanic to

have to remove pounds of dirt and gravel from the would-be mud pans before being able to remove the crankcase, etc., to work on the motor. Gravel and sand is harmful to all parts of a motor and should be excluded, if possible. Particularly around exposed moving parts. Let's build the pans from the motor hose side all the way to the car frame—on both sides.

Everyone has had the sad experience of finding the emergency brake "stuck". One reason for this is the brake cable, carried in a flexible housing to the brake control is a very snug fit and not lubricated. This cable moves but a short distance, back and forth, and any dirt or rust accumulating has very little chance of working loose. Water can enter this flexible housing and, in cold climates, freeze. This, of course, retards the movement of the cable. I would suggest some kind of covering over the flexible housing, sealed at both ends, and some kind of all-year lubricant within the covering that would penetrate the flexible housing and then reach the cable. This would insure the brake cable against "sticking" and give the car emergency brake service at all times.

M. J. PERKINS,
Northern States
Power Co.
Mankato, Minn.

Oil Pump Lock Bolt

THE GRIPE DEPARTMENT,

DEAR SIRs:

These new advancements on modern motors are all right but there is one that I personally will go back to the earlier model. Such as the lock bolt that locks the oil pump in the newer model of a popular make of truck. Instead of being on the outside, some smart engineer thought of putting it on the inside where it couldn't be seen, as if

(TURN TO NEXT PAGE, PLEASE)



THE GRIPE DEPARTMENT

(CONTINUED FROM PAGE 47)

some one's going to crawl under a car and look up for a bolt.

I guess it was too easy to get at so

it had to be fixed. You lay on a creeper, looking up and wondering how you will get up in between the crankshaft and the block to loosen up said bolt and bingo you get a slug of oil in the eye. You wipe it out, if you have a towel, and then start looking for two wrenches about three foot long, real slim and with a crook on one end, knowing it is futile to look for such a wrench.

You then get a couple of short wrenches with a crook on the end, and squeeze your hands up between the block and the crankshaft trying to balance said two wrenches on the ends of your fingers.

Wham! another slug of oil in the

face. You don't bother to wipe this off as you are getting used to it.

And then just as you get up in this crowded little margin and start to turn the lock nut, along comes your partner and for some unknown reason wonders if the starter works and proceeds to try it, unbeknown to you until the crankshaft comes around and bingo, two fingers all mashed up. Ask me, I know. I had it happen. No thanks, give me the one on the outside where you can stand on the floor and reach over the fender.

CHAS. A. KIMBALL,
Fleet Mechanic,
Bell Bakeries, Inc.,
Flint, Mich.

A Reader Suggests "Pneumatic" Tire Removal

THE GRIPE DEPARTMENT,
DEAR SIR:

Mr. Ernest Miller, Laurelton, L. I., has a well-founded gripe on removing large-size tires which are stuck to the rims.

Here is a sketch showing an idea

SHORT LENGTHS OF 2 IN. x 4 IN.

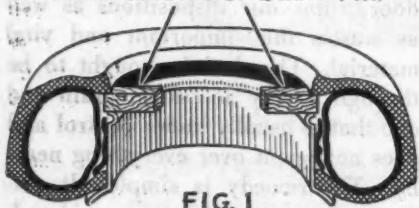


FIG. 1

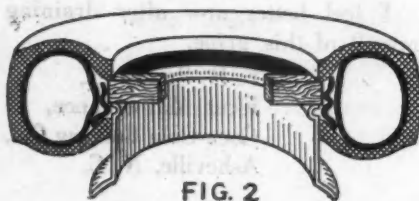


FIG. 2

on removing stuck tires from rims which I have found to work out very well and perhaps if it is passed on to Mr. Miller, he too will find it helpful.

First remove the lock ring.

Second, inflate the tire with the ring off sufficiently to insert 2-in. wood blocks (Fig. 1) between the rim and the bead of the tire.

Third, bleed all the air from the tube. The tire will have a tendency to retain its original shape. The bead pressing against the block will tend to pull the opposite bead off the rim (Fig. 2). A few blows on the block

with the hammer will help if the tire is badly stuck.

E. F. THORNE,
Berkeley, Cal.

Mr. Miller's Reply

THE GRIPE DEPARTMENT,
DEAR SIR:

Our past experience in tire removal (sizes 11.25 x 20 and 12.75 x 24) has been a torturous one and since our trucks roll in axle-deep mud and are subjected daily to moisture and other injurious chemicals, more so than the average truck affected only by inclement weather, our tire repairs are many and tough.

Mr. Thorne's method may be helpful to the individual truck owner but not very practical to the tire repairman or fleet owner who wants a systematized, safer and cheaper repair. Besides, one must remove all flat tires, some too badly damaged to be removed pneumatically.

Until tire rim manufacturers can supply the automotive industry with rims made of non-corrosive metals (solid or plated) or I might also suggest a ventilated rim to help dry out moisture trapped in a mounted tire of present design, we shall continue using a self-designed, hydraulic, motor-driven tire press that will remove tires with ease and without injury to said tire in about 3 min. actual time. I believe you included this machine in a published survey made of our shop with photographs some years ago. (Ed Note—In the August, 1940, issue, p. 22.)

ERNEST MILLER



Gripes and Remedies

THE GRIPE DEPARTMENT,
DEAR SIR:

Have just received the November issue and as usual have read all the gripes as soon as I got that far in the issue.

I have thought of sending in some for some time but I hate to gripe about how someone else has made something if I cannot suggest a workable remedy.

In going over this issue's gripes, I only see one who suggested that we give remedies for the gripes. Also I think the ones in this issue are not very logical if they are speaking of the late models, and certainly that is what we have to think of. Most of them seem to me to be lack of tools or experience.

The one gripe I have deals with most L-head engines (not all as some have furnished the information). The trouble is that they give you valve clearance for a hot engine and it should be given on a cold engine as they are necessarily hard to get at, and when manifold and exhaust pipes are hot, it is worse.

I know that the manufacturer will say that different location on engine will change with heat, but they certainly could test the engine and put

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out a chart giving cold setting for each valve, if necessary.

Another gripe I have with body manufacturers is the conversion of a body type from one chassis to another, if the bodies ever fit sensibly on any chassis. The one we purchased in 1941 had a cross-member located about 4 inches too far forward to pass just behind wheel housing so the member was cut off at wheel housing and no other put in. As this was a house-to-house body on a light chassis and only four cross-members back of front step this put an added load on rear end of chassis causing frame to break. This could have been remedied by relocation of this cross-member in construction of this chassis.

In closing will say this, that if the boys think trucks are bad they should see some of the machinery used in plants. I have been fleet superintendent for 19 years and plant maintenance superintendent for five years with Sanitary Baking Co. Before 1941 we operated about 500,000 miles per year. We operate 20 trucks and four cars. In old days, we not only maintained our fleet but built about half of our own bodies.

C. L. TODD,
Fleet Supt., Sanitary
Baking Co.,
Clarksburg, W. Va.



Blessings, Burns and One Little Thought

THE GRIPE DEPARTMENT,

DEAR SIRs:

No doubt by this time you have discovered that you have let your self in for a bigger job than you anticipated. (Ed. Note—Big, but we love it.) Personally, I think we mechanics have been in need of just the thing you are doing. May I congratulate you on the splendid job you are doing in attempting to correct a situation that has been overlooked by the manufacturers. Now is

\$10

Have You a Bone to Pick with the men who get out Factory Service Instruction Manuals?

What do you think of the service instruction manuals and bulletins that are issued by automotive manufacturers?

Are they useful?

Are they practical from the mechanic's point of view?

Do they meet his on-the-job requirements?

Or are they looked at when received and then tossed into a corner or drawer and referred to only occasionally?

In what form do you think service instructions should be prepared by manufacturers?

New postwar vehicles, parts, accessories and equipment will require new service instructions.

Now is the time for mechanics and shop foremen to tell factory service men how those instructions should be prepared for maximum usefulness.

Here's your chance to take a hand in guiding factory men to do the right thing by you.

For every letter published on this subject Commercial Car Journal will pay \$10.

In addition, the best letter each month will receive a \$25 War Bond. The choice of letters for publication and for the War Bond will be made by The Editors. Choice will be determined by the content of the letters and not by style of writing or appearance.

Address your letter to
THE GRIPE DEPARTMENT, Commercial Car Journal, Philadelphia 39, Pa.

the time to bring about postwar planning that will be a boon to the forgotten repairman. Good luck and God bless you in your new adventure.

Any mechanic could write page after page describing his gripes and pet peeves that have brought forth many an unorthodox phrase from his lips.

During my 27 years as an auto mechanic on all types of trucks, buses, automotive equipment, I have wondered who thought up the placement of the many impossible and inaccessible gadgets on an automotive engine. For instance, the car manufacturer gives us a hot valve setting. Of course, one must completely assemble the engine to get it to the proper temperature. Then one either burns hell out of his hands and forehead trying to adjust the tappets or else removes the hot manifold and starts from a cooling engine temperature. Why is it not possible to determine a cold setting and let it go at that? Either this or a more accessible valve mechanism.

I have just finished a job on a popular make light delivery truck. It was

necessary to remove the starter to install a new set of brushes and turn the armature. (Oh yes, the brush pigtails were soldered to the field coils.) It made my blood boil to think of the engineer who studied many hours to determine the stress and balance point of a given length of beam; the hours he has spent at the drawing board mastering the technique of perfected drawings has gained him the title of mechanical engineer, yet the final product of his efforts could be equalled by any high school student. His drawing did not reveal the position of this starter after it was placed in the chassis and the body draped around it. He did not take into consideration that the steering column, cowl, floor boards, brake fluid reservoir and several other parts are located in the path of the mechanic who must remove the starter occasionally. It is almost an impossibility to use a wrench or socket on the head of the bolt at the top to remove it. Why, oh why, must the engineers ignore a finished model before final production is started?

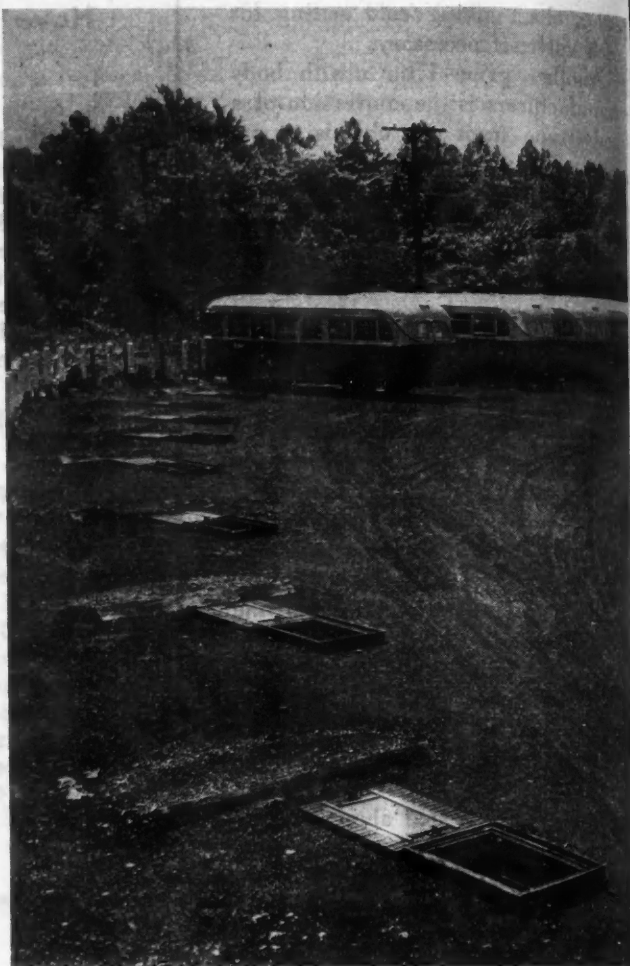
(TURN TO PAGE 126, PLEASE)

CURING COLD WEATHER BLUES

This is the first of several articles to appear in **COMMERCIAL CAR JOURNAL** dealing with the problems of cold weather truck operation and their solutions.

Outdoor storage of trucks is hard on the engine, battery and other parts. In addition, there is a time and fuel loss which can be an important factor, especially in large fleet operations. The Philadelphia Transportation Co. was faced with this problem when it was obliged to store 27 vehicles outdoors due to the lack of indoor storage space. A satisfactory solution was found in the infra red heating pits which are fully described in this article.

Next month an article by Emil P. Gohn, automotive engineer, The Atlantic Refining Co., will outline his company's solution to this problem by means of a crankcase immersion heating device.



Infra red

Heating Pits

Even when parking lot temperature drops to 3 deg., crankcase stays at 85, permit-



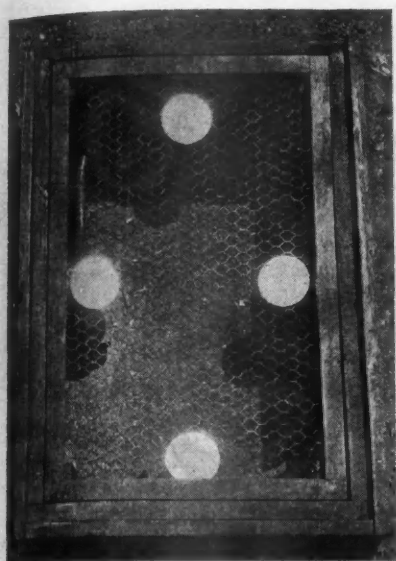
R. M. Daigleish, Jr.

WARTIME increases in traffic have required the operation of every available vehicle to take care of this expansion. Bus fleets have been increased in locations where adequate storage facilities are not available. Additional storage facilities have not been possible and thus greater attention has been given to the problem of outdoor storage of buses at these locations and their adequate protection under these conditions.

The rapid expansion of bus service in one of the out-

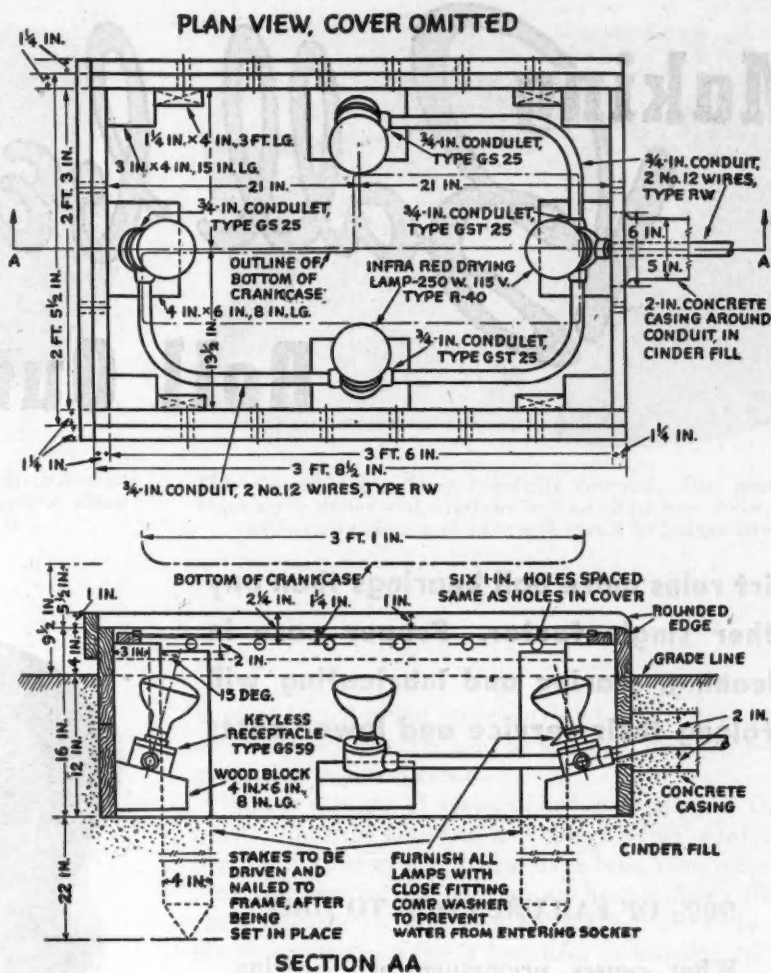
lying divisions of the Philadelphia Transportation Co. serving the Chester, Pa., area created a problem of having to store approximately 20 ACF type 31-S buses outside. The experience with outdoor storage throughout the first winter proved unsatisfactory. Engines were operated at intervals while buses were stored to prevent freezing and to maintain starting temperatures. Even with this method of heating, starting difficulties and engine troubles were experienced.

The necessity for some form of engine heating during the storage period was apparent and an investigation of the present systems of heating now in use for buses when stored in the open indicated they had not proven satis-



Close-up of one of the 27 heating pits employing four infra red lamps as the heating elements. Size of pit is 27 x 42 x 16 in. Screen protects lamps from breakage. Pit is covered when not in use. Covers are shown at left

Right. Construction details of Philadelphia Transportation Co.'s outdoor heating pit. 27 were built for \$3,000



s | Keep Engines "in the pink"

ting smooth starting, saving battery and gas, at a cost of 28 cents a day per vehicle

factory. These systems, such as hot air introduced into the engine or emersion heaters in the crankcase were subject to the limitations of vibration from the engine and to road shock.

The success of infra-red heating in industrial applications pointed to this means of heating as a possible solution for the problem of heating of bus engines for outdoor storage. Accordingly, experiments were conducted by the company's research department to determine the suitability of this form of heating.

These experiments conducted during the winter of 1942-43 indicated that this form of heating might be satisfactory. Tests conducted in temperatures as low as

by R. H. DALGLEISH, JR.

Assistant to Vice President of Operation, Philadelphia Transportation Co.

30 deg. F. showed satisfactory engine temperature were maintained throughout the storage periods and engines were started with no difficulty.

These preliminary experiments lead to further tests made on an ACF 31-S bus conducted in the "cold room" of the Atlantic Refining Co. Automotive Testing Laboratory with the cooperation of their test engineers. These tests were conducted under controlled conditions of temperature.

Making *Ball bearings* Roll Out More Miles

Dirt ruins more ball bearings than any other single factor. Proper care in cleaning, storing and lubricating will prolong their service and lower costs

90% OF FAILURES DUE TO DIRT

What causes premature ball bearing failure? How can maximum life be obtained?

Experience indicates that more than 90 per cent of ball bearing failures are due to dirt which has collected in assembly or in operation.

So, this first in a series of two articles, deals with cleanliness in handling, washing and storing bearings, and with their lubrication.

The second article will deal with the grinding, fitting and installation of ball bearings. For all material and illustrations used in both articles **COMMERCIAL CAR JOURNAL** is indebted to the Marlin-Rockwell Corp.

DIRT ruins more ball bearings than any other factor. One of the leading ball bearing manufacturers substantiates this fact with the following statement.

"More than 90 per cent of all ball bearing failures are due to dirt that has found its way into the bearing, either due to carelessness before or after assembly, or by the user after the unit has been placed in operation.

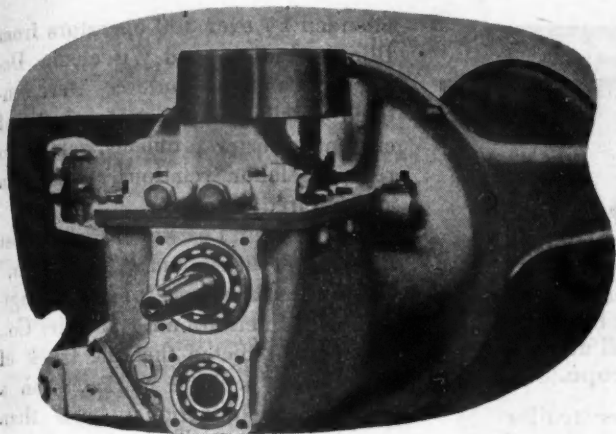


Proper washing of the bearing is important. The bearing should be dipped into kerosene and spun several times to dislodge hardened grease from the ball cage pockets

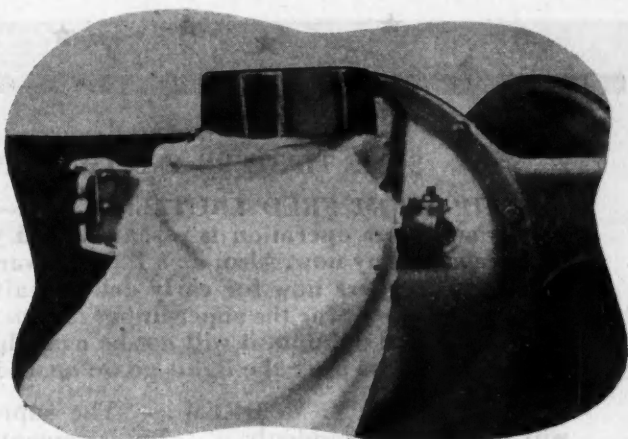
"Bear in mind that the balls rolling in their race grooves have an actual metal-to-metal contact, often under hundreds of pounds pressure. Dirt is made up of myriads of diamond-hard particles which, when mixed with the lubricant, make a lapping compound. Thus, the revolving action of the balls in operation gradually grind away the original close fit-up of the bearing and destroy its accuracy and efficiency."

Few single commercial units are made as accurately as the ball bearing. Its efficiency depends upon maintaining close dimensions—the reason why dirt spells disaster. Ten good points to remember in handling bearings are:

1. Do not remove bearings from box until ready to install.
2. Keep hands and tools clean.
3. Do not wash out the grease in which the bearing is packed.
4. Keep grease can covered.



This unit, if left exposed overnight, will collect sufficient dirt and dust particles to cause premature failure. A clean cloth should be used to cover the unit



This assembly has been carefully covered. Dirt and grit from open doors and windows has no chance to enter. The little extra time and care will result in longer life



The easiest way to clean the bearing after flushing is with compressed air. Races should be held to prevent spinning. When dry, oil the bearing to prevent rust

5. Use plenty of clean rags.
6. Keep assembly bench clean.
7. Use newspapers to lay bearings on while installing.
8. Be sure shaft and housing seats are perfectly clean.
9. Paint inside of housing to seal-in core sand and chips.

10. Cover exposed bearings that must be left over night.

Units left uncovered over night or even for a short time will collect enough dirt and dust to cause eventual damage to the bearing.

All exposed parts should be covered with a clean rag or newspaper to prevent the accumulation of dust as well as to keep down rust of the polished surfaces.

New bearings should not be washed unless it is absolutely necessary because the manufacturer has used a high grade non-acid lubricant free from all chemicals and

impurities that might cause corrosion. If it does become necessary to wash new ones or when old ones are washed, proceed as outlined below.

Pour two quarts of kerosene into a metal pail. Dip the bearing into the kerosene and spin bearing slowly. Repeat until all traces of grease have been removed. Now blow the bearing dry with an air hose, holding the two races together so that they do not rotate. Only allow the inner race to rotate a few turns to dislodge the kerosene from the retainer pockets. If the bearing is very dirty, it is advisable to rinse it in a second bath of kerosene. When the bearing has been blown dry, it should be oiled immediately, to prevent corrosion of its polished surfaces. A bearing will rotate noisily when dry or dirty. After cleaning and oiling there is a noticeable difference in quietness.

After the bearing itself is thoroughly clean, attention should be given to the bearing housing. The same care should be observed. After it has been washed in kerosene and blown dry, inspection under a strong light should be made to test corners for possible chips or dirt. Painting the inside of the housing with a heat resisting, quick-drying paint, seals in the core sand and provides a smooth outer surface to which dirt does not cling.

Storage of New Ball Bearings

Before new bearings are installed, they should be carefully checked to see that the paper in which they are wrapped has not been opened and dirt accumulated on the factory grease. New bearings are packed in sealed boxes ready for installation. Stocks should be stored in a cool, dry place in order that the packing grease will not melt and to prevent moisture from entering to the bearing surface and causing rust.

New shipments of ball bearings should be placed at the back or bottom of the pile in the stock room and the

(TURN TO PAGE 138, PLEASE)

This is

• PART 1 •

Part 2 will cover proper procedures for grinding, fitting and installing

SOME TIPSTERS AND THEIR TIPS

A TIP FROM FRED LAUTZENHISER:—"If you need trucks and your operation is essential, and you can get an ODT release, buy now. Also, do a little forward thinking and place truck orders now for early delivery after Germany is licked. Don't wait for the super-duper dream truck, because, in my personal opinion, it will not be available until at least a couple of years after the lights go on again in Europe."

A TIP FROM V. M. DREW:—"The super-duper trailer will not emerge suddenly . . . Improvements as developed will be added to present models and will not be held back . . . Take care of your requirements for new equipment as your judgment may indicate . . ."

A TIP FROM D. C. NOBLE:—"Radio for use in motor truck operations has its limitations . . . If truck operators install a radio system, FCC rules will require every driver on a truck equipped with a radio set to take out a transmitter's license, for which severe tests must be passed. Since adjustment of the frequency to avoid interference with other wave bands is a critical factor, the transmitting driver is not permitted to adjust or service the set, and another licensed operator would be required for this."

A TIP FROM EARL CANNON:—"The practice of seeking voluntary pay raises in order to attract additional manpower is one which labor is going to use against you."

Straight Tips on Trucks, Trailers and 2-Way Radio

Truck of the future still in the imagining stage, truck radio has limitations, motor carrier conference told

by H. H. SLAWSON

"SUPER-DUPER" trucks and trailers, cooperation in air cargo development and the use of radio in truck operations were among subjects considered at a con-

ference of midwestern motor carriers in Chicago, Dec. 13 and 14.

Sponsored by the American Trucking Association's regular common carrier conference, the meeting was

attended by over 500 operators from Illinois, Indiana and Wisconsin. Deliberations of the conferees were centered chiefly on national aspects of current industry problems, related to revenue, labor relations, legislation and kindred topics.

Discussing "Postwar Trucks, Post Postwar Trucks and Conversion," Fred B. Lautzenhiser, consulting engineer with International Harvester Co., Chicago, predicted that the truck of the future "will be marketed on a more nearly functional basis than ever before."

"If the vehicle selected will actually fit in and do the job economically, the owner will buy it," said Mr. Lautzenhiser. "If the truck has good performance, is comparatively easy to handle, rides decently and has a comfortable driving compartment, the driver will buy it. If the various components are accessible and reasonably simple for maintenance work, the mechanic will buy it. Unless all three do buy it, it isn't a good proposition for either manufacturer, seller or purchaser."

The post postwar truck, Mr. Lautzenhiser believes, will not materialize until the war in Europe is over, when pressure of immediate production requirements have been met and "engineering lead time" has been whittled away.

The truck of the future, he said, is still pretty much in the "imagining" stage and not yet completely designed and tested. Referring to currently circulated conceptions of what is supposed to be coming, he derided writers who talk about trucks "powered by a radio beam, braked by wishful thinking and steered by mental telepathy."

"Generally speaking, however, and for some time to come," he continued, "the immediate postwar truck of most makes will very likely continue to look pretty much like and incorporate pretty much the same specifications as the WPB-authorized current production vehicles, which are yet basically the 1942 models."

"Many makes and models will no doubt embody certain improvements and refinements that have resulted from wartime experience. However, it is not likely that the immediate postwar truck will incorporate new design, construction or materials radically departing from 1942 models."

(TURN TO PAGE 160, PLEASE)

THE AUTHOR SAYS

"Primarily we are interested not in who is at fault but could the collision have been avoided in spite of the error of the other fellow?"

"In the face of 30,000 fatalities and several hundred thousand injuries each year, it stands to reason that thousands and thousands of drivers do not know how to drive well and have so little appreciation of their responsibilities that, against their will, they tangle with others to the extent of the deplorable accident figures cited."

"The responsibility for first-class mechanical inspection must be kept a function of maintenance and not be allowed to shift over on to the driver's shoulders."

"Fourteen types of accidents that are unnecessary and avoidable."



J. Willard Lord

THERE are those who take the attitude that driving is a simple technique, that most drivers know how to drive well, particularly the professional driver, and that accidents can be reduced to a minimum by strict disciplinary routine and by such devices as payment of substantial monthly or annual bonuses. This group hesitate to attempt any driving instruction and may even question the advisability of any instruction program not only from an expense viewpoint, but they fear that in so doing supervision would lay itself open to an undesirable situation of when there is an accident, the driver will blame the whole affair on the fact that he was following supervisory driving instructions.

However, I believe that the majority of thinking operators have come to realize that, in the face of 30,000 fatalities and several hundred thousand injuries each year, it stands to reason that though practically every driver of either a car or a truck insists he is a first class driver, the truth is, thousands and thousands do not know how to drive well

and have so little appreciation of their responsibilities when behind the wheel that, against their will, they tangle with others to the extent of the deplorable accident figures just quoted.

This frightful year in and year out evidence that most drivers are far from being experts and have only a limited knowledge of good driving practices is further substantiated.

(TURN TO PAGE 92, PLEASE)



Was That Accident Really Unavoidable?

A safety expert's reasoning leads to conclusion that a change in attitude of drivers and supervisors is needed

by J. WILLARD LORD

Safety Engineer, The Atlantic Refining Co.



The Italian Front

MUD—Typical Italian “proving ground” obstacle for 6x6s

PASSED BY THE CENSOR

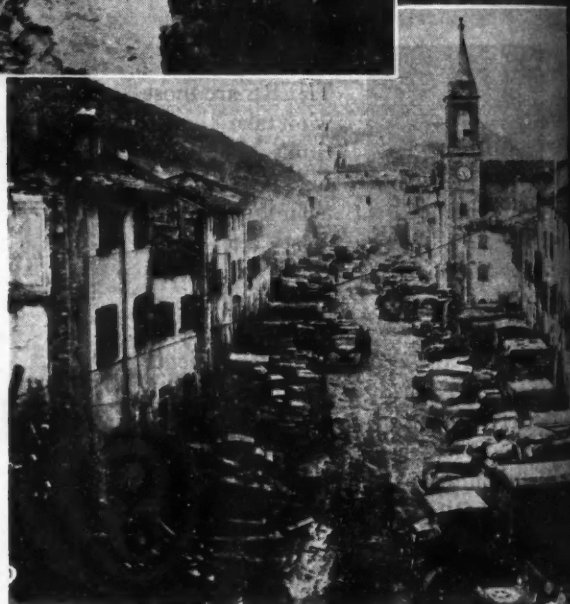
Here is an engrossing account, prepared by the Fifth Army itself, of how motor trucks have helped the Allied advances on the Italian Front. The soft (as mud?) under belly of Europe was easy to puncture but hard to penetrate. Its muddy softness would have gummed up the task of supply except for trucks with their high tractive ability. In rugged, mountainous territory tractive ability again proved to be a deciding factor.

Trucks helped troops establish the Anzio beachhead. Loaded in southern Italy, they drove to Naples, were ferried in LST's to Anzio, drove right off to forward dumps, turned around and were ferried back to Naples for another load. This was the “Naples Turn-around.”

For three critical weeks in the push North from Rome trucks provided an ammunition dump on wheels.

Since Salerno two and a quarter million tons of ammunition, food, clothing and equipment have passed through the vast population of the Fifth Army, and every pound has been moved somewhere along the line by trucks.

Truck operators with their own home-front operating problems will take pride in these accomplishments of truck operators on the Italian Front.



DEBRIS—Bombed villages and debris were taken in stride

WITH the Fifth Army, Italy—“When the Fifth Army hit Italy in the fall of 1943, we had to feed and clothe and equip our troops pretty much according to the book—the book of the World War,” said a Fifth Army supply officer recently. “Before we reached Naples we had thrown the book out the window and had started writing our own.”

The “Book” which Fifth Army supply services have written in the Italian campaign, that is, the lessons they have learned the hard way and the new techniques they

Front: Truck

Proving ground



MORE MUD—Heavy rains reduced roads to quagmires

have developed on the proving grounds of Italy, has become SOP (Standard Operating Procedure) for American armies on every Allied front.

Thus, before the Normandy invasion, General Eisenhower's supply chiefs sent 20 officers down to Italy with plans for the Channel operations to be carefully checked at Fifth Army headquarters. Three months prior to the invasion of southern France, the Seventh Army detailed supply officers with the Fifth to observe its methods as it moved up toward the Apennines. Later the Seventh Army

Tough terrain, fast-moving troops create supply headaches solved by trucks employed as rolling reserves." Allied drive in Normandy copied techniques used in Italy

staffed its headquarters with some of the experienced supply personnel from the Fifth. The transportation system which rolled Allied might across northern France last summer was carefully patterned after the set-up at Fifth Army, where for the first time, Lieut. Gen. Mark W. Clark had created a transportation section as a part of an army special staff.

Supply problems have been enormously complicated in Italy by the toughest terrain an American army has fought over in this war—literally 400 miles of rugged, forested mountains, including snow-covered ranges over half a mile high.

It was over this proving ground that the Fifth Army, had to be kept rolling. The problem in one commodity alone—gasoline—gives some idea of the task. An armored division will use 20,000 gal. of gasoline a day *at rest*; up to 50,000 a day in combat. When the Fifth moved through Rome on June 5, its trucks and tanks were burning 400 gal. of gas *every minute*!

To meet these needs in a country where transportation was limited primarily to one or two overcrowded highways, pipe lines were constructed from petroleum installations at Naples to terminals near the front which took the place of over 600 trucks a day when operated at capacity.

The gas is distributed in forward areas through dumps

(TURN TO PAGE 116, PLEASE)

FREE

Publications

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USE THE POSTCARD

VALUABLE AIDS FOR FLEETMEN

A selected list of the latest literature — books, pamphlets and catalogs — intended to help fleet operators solve maintenance and operating problems. They are more valuable today than ever before. All are free. To get your copies simply fill in the numbers on the postcard and mail. No stamp is needed.

L221. Tire Maintenance Manual

Many manuals have been written on tire conservation but few are as complete and specific in their analysis as this new manual prepared by a leading tire manufacturing company.

This manual, entitled, "Vehicle Factors Affecting Tire Mileage," consists of 33 pages of concrete information on five major causes of poor tire mileage. Eighteen diagrams and photographs supplement these facts and actually prove how the trouble originates.

The factors relate to all makes of trucks, in varied types of service and under present day operating conditions, so every operator will find it directed to his own problems.

The large 8½ x 11-in. pages provide easy and comprehensive reading. A copy will be sent to any one writing L221 on the free postcard.

L222. Engine Lubrication Manual

Here is a practical fleet operator's guide to heavy duty engine lubrication. A handy, pocket-size booklet of 16 illustrated pages shows how to get economical lubrication for every operating condition. Through this

company's laboratory control service, specific "prescriptions" for individual needs can be obtained.

Today, when engine lubrication has become a tougher problem than ever before, these practical facts should prove valuable. Write L222 on the free postcard and get your copy.

L223. Dual Wheels Booklet

Fleet owners will be interested in this new 27-page, illustrated booklet on dual wheels for all types and models of trucks. Complete information on their construction and application under various conditions is outlined in clear, concise style.

The booklet's primary purpose is to help in the selection of new wheel equipment, the servicing and replacing of old, and in changing over tire and wheel equipment. Methods are shown for checking wheels for run out, and illustrations of rim types will show the various kinds in use.

Former issues of this book have been in great demand by superintendents and fleet operators. Get your copy promptly by writing L223 on the free postcard.

L224. Air Equipment Booklet

Costly manual labor and hand equipment is being replaced with modern power handling devices in shops today. Air equipment has many distinct advantages over other types.

A pocket-size booklet just published by a leading manufacturing company will enable the fleet operator to survey the applications that men in his industry as well as other industries have made in the use of air equipment. The 25-page booklet, entitled, "How Air Is Being Used in Your Industry," offers practical time- and labor-saving suggestions for the forward-looking operator.

Write L224 on the free postcard and get this booklet.

L225. Chain Installation Chart

There are new men in the truck field who just don't know the right way to put on truck tire chains. To help these fellows and to refresh old-timers in the business, a simplified picture-chart has been prepared showing how to put on single and dual pneumatics with three side chains.

Nothing is left to the imagination in this chart. Step by step the driver is shown exactly what to do and why. The pictures are large, and the type is big so that the driver can follow the sequence right from the floor.

These "How to Put On" charts are printed in two colors and measure 24½ x 18 in. Just write L225 on the free postcard for your copy.

NEW

Products

USE THE POSTCARD

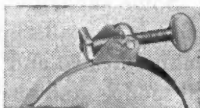
NO STAMP NEEDED



FOR FLEET OPERATORS

P303. New Universal Clamp

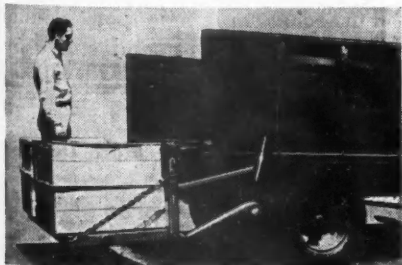
Because of its high strength and re-usability factors, the new Universal series 820 stainless steel flexible-band hose clamp is especially suited to trucking requirements. Made by the Marmon Products Co., Inc., Inglewood, Calif., the clamp features a patented swivel-action nut that rocks on swivel pins and tips down when the thumb screw is tightened. This cinches the band and prevents slipping. The clamp is said to be vibration-proof and has no tendency to pinch regardless of pressure applied on the screw.



Use Free Postcard For More Details.

P304. New Elevating Endgate

Self contained power loading has been achieved on trucks and truck-trailers by means of the new elevating endgate being marketed by Fruehauf Trailer Co.



This device is a steel tail-gate which acts as an elevator. It can be

The latest in shop equipment, supplies, replacement parts and accessories developed by manufacturers for fleet operators. For more details of any product described, fill in the number on the postcard and mail. No stamp needed. Also use the postcard for additional information on any product advertised in this issue.

installed in place of the ordinary endgate of standard design. Hydraulically driven by power from the truck engine, it is ideally suited for heavy materials having a capacity up to one ton. With this endgate one man can load and unload objects ordinarily requiring several, with a time saving equally proportionate.

This elevating endgate is of sturdy, steel construction. It is controlled by levers at the rear of the vehicle. When not in use, it may be swung down out of the way or upwards and closed, just as any conventional gate. It may be used to carry extra payload. It saves time and money in one of the most troublesome and costly phases of trucking—loading and unloading.

Use Free Postcard For More Details.

P305. Portable Tachometer

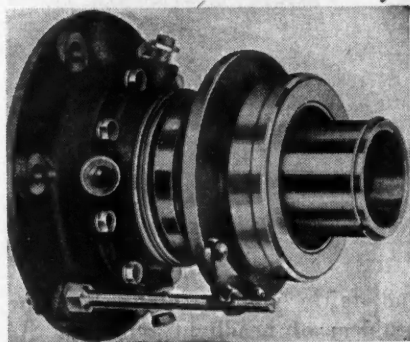
The new portable hand tachometer manufactured by Jones Motrola Co., Stamford, Conn., is said to give quick, reliable checks on r.p.m., feet per minute, total output, and other similar information. Several models of tachometers for mounting on machines and engines are available.

The Jones tachometer operates on the centrifugal, mechanical principle. It is unaffected by magnetic or temperature conditions. All operating parts are on ball bearings and require little attention over long periods of service.

Use Free Postcard For More Details.

P306. Clutch Actuator

The Pesco Products Co., a division of Borg-Warner, Cleveland, has designed a clutch actuator to eliminate the friction common in clutch release.



By means of a master cylinder operated by the clutch pedal, pressure is applied through a pipe-line to the end of the clutch release bearing sleeve.

(TURN TO NEXT PAGE PLEASE)

NEW

Products

CONTINUED FROM PAGE 59

USE THE POSTCARD BETWEEN PAGES 58 & 59

NO STAMP NEEDED

The system is so arranged that an automatic adjustment occurs on every engagement of the clutch, while a metering valve provides the exact clearance for the release bearing.

There are many advantages, it is said, to this type of device. The friction of lever bearings, clevises, cross-shaft and release fork have all been removed by elimination of these parts. Lubrication is no longer an item to be contended with. Clutch pedal pressure is reduced by more than one-half. A full wear of the clutch lining may be obtained without adjustment, thus eliminating maintenance costs, and the engagement is said to be smoother due to hydraulic actuation.

Use Free Postcard For More Details.

P307. Automatic Dimmer

An automatic dimmer, developed by the Arrow Safety Device Co., Mount Holly, N. J., offers a quick



and fairly simple solution to the problem of headlight blinding. As the headlights of the approaching vehicle get within the proper distance, a special light-measuring unit works the dimmer automatically.

Use Free Postcard For More Details.

P308. New Ford Rod Socket

The new Ford connecting rod socket, manufactured by the New Britain Machine Co., New Britain, Conn., is the answer to the problem of the mechanic who has found the standard size socket too heavy for the job. This 9/16-in. tool has a thin



wall to negotiate tight spots where the conventional wrench proves awkward. Made of quality steel, the socket is well within the breakdown test required by government specifications. It has been subjected to a proof load as high as 4500 in.-lb. without deformation.

A priority rating of AA-5 or higher is required to obtain it.

Use Free Postcard For More Details.

P309. New Torque Wrench

A new Livermont Torq-Stop wrench, developed by Richmond, Inc., Los Angeles, is said to provide precision, versatility with simplicity. It has no dials or batteries and can be used by unskilled mechanics, since the action is automatic.

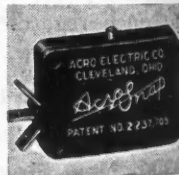
Each wrench is pre-set to the proper load for the nut it is designed to fit. When desired load is reached, the wrench gives an audible click and small plunger located in the handle taps the operator's hand. Designed on the principle of spring bar deflection, the tool is sturdily constructed for production and service use.

Some suggested uses of the wrench include installation of spark plugs, engine heads, and hose clamps. Over 60 models and sizes are available.

Use Free Postcard For More Details.

P310. New Snap Switch

Reported to be the smallest enclosed snap-action switch ever built, the new Miniatic is only 17/64 in. thick, 13/16 in. high, and 1 3/16 in. long. Engineered on the well-known rolling spring principle with a new design and smaller size, the switch



is enclosed in a bakelite case with four mounting holes. Actuation is with a stainless steel plunger; all parts are non-corrosive, and all contacts are of fine silver.

Furnished in single pole double throw, the switch is manufactured by the Acro Electric Co., Cleveland, Ohio.

Use Free Postcard For More Details.

P311. Acid-Proof Apron

A new heavy duty acid-proof apron made with a treated fabric combined with a new plastic is announced by The B. F. Goodrich Co., Akron, Ohio.



The apron is made in one size only, 35 in. by 47 in., full. It weighs 1 $\frac{3}{4}$ lbs. It can be easily washed or cleaned without harm to its acid-proof qualities.

Use Free Postcard For More Details.

P312. Portable Elevator

Revolvator Co., North Bergen, N. J., announces a new model portable elevator which combines the telescopic principle with that of the hinged model. It will collapse to a height of 7 ft. so that it can be wheeled under doorways and then raised to a full height with a hand wheel.

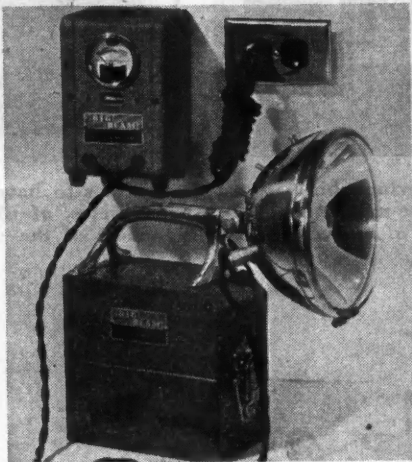
Although of lightweight structural steel, the platform will safely accommodate two men with tools to a 24-ft. working height. Other safety features include widespread auto-type steering, independent floor lock, self closing brake and broken cable safety which holds the platform stationary in the event of breakage of the cable.

Use Free Postcard For More Details.

P313. Portable Searchlight

This "Big Beam" No. 411 hand searchlight, made by the U.C. Lite Manufacturing Co., Chicago, will

project a concentrated beam of more than 2500 ft. or, by means of snap-on lens, give the same volume of light over a wide area. A heavy duty,



shockproof 6-volt storage battery, rechargeable from the a.c. charger, d.c. line or light plant, provides the power. The lamp head can be turned in any direction, and the case can be secured to any flat surface by means of the hold-down.

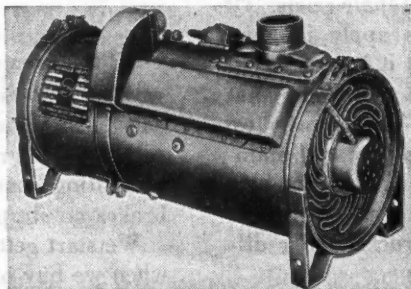
"Big Beam" is said to be dependable, economical in operation, and can be adapted to a wide range of uses. Other models, powered by dry-cell batteries, also are available.

Use Free Postcard For More Details.

P314. New Heater

The Herman Nelson Corp., Moline, Ill., has announced a new type gasoline heater designed primarily for commercial vehicles but serving equally well as a space heater for personnel or as a preheater for cold weather operation.

The heat output is 20,000 B.t.u. The unit measures 15 x 6 $\frac{1}{8}$ in. and weighs 17 lbs. It is powered with an electric motor. It makes use of a new low pressure principle of combustion



so that a minimum of current is drained from the battery. Installation requires only a supply of fuel and a source of electricity. Operation

is fully automatic, being remotely controlled by an on-off switch.

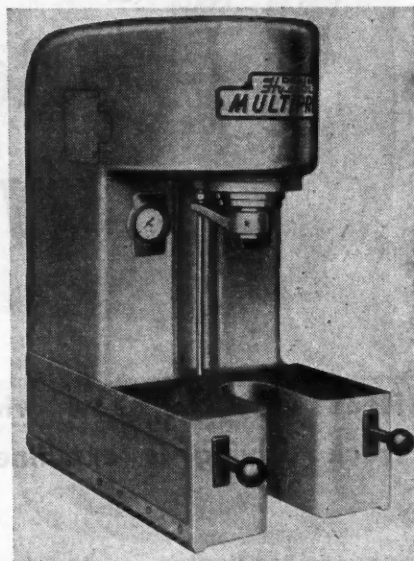
Models are available for 6, 12, and 24 volts d.c. Present production, according to the Herman Nelson Corp., is devoted to special applications for the armed forces.

Use Free Postcard For More Details.

P315. Hydraulic Bench Press

To those seeking a new and economical means of speeding up operations requiring anywhere from 300 to 8000-lb. pressures in single, or repeated up and down strokes, the announcement of a new hydraulic bench press introduced by the Denison Engineering Co. of Columbus, will be of particular interest.

This machine, called the "Multi-press," has been designed to utilize a wide variety of accessories and fixtures with which it can perform numerable production operations,



such as honing, broaching, assembling, burnishing and straightening. The manufacturer suggests 25 such applications.

All working parts within the frame of this press are of unit construction, readily accessible and removable for inspection. The working space provided is: daylight opening, 11 in.; table, 16 in. x 10 $\frac{1}{2}$ in.; throat opening, 6 in. A 3-hp. electric motor supplies the power.

Use Free Postcard For More Details.

P316. New Blended Lubricants

The Bonded Oil System, Inc., Boston, Mass., manufacturers of industrial and automotive lubricants, has

(TURN TO PAGE 112, PLEASE)



Bejin Cartage places great stress on driving ability as a factor in keeping maintenance down to the minimum. The trophies shown above attest to the results of management's



efforts to have properly trained men at the wheels of its vehicles, of which the road tests play an important part. Some of the vehicles of the Bejin fleet are shown above

Winter

Road Tests Cut Winter Maintenance

Fleet's records show winter maintenance is related to driver's ability. Correct truck driving is explained and ability to use brakes on slippery roads tested



A. F. Hoppensock

WINTER operation of a motor truck fleet in normal times presents plenty of problems, but in wartime our problems are compounded by shortage of help, new drivers, and difficulty in obtaining necessary repair parts. Of course, these factors apply in summer driving also, but it is under conditions of cold, ice, and snow that they are felt most. That is why we find it necessary to turn every stone to prepare and maintain our trucks for cold weather driving and to put particular emphasis on instructing our drivers, many of them inexperienced, in how to handle their trucks under difficult conditions of road and weather.

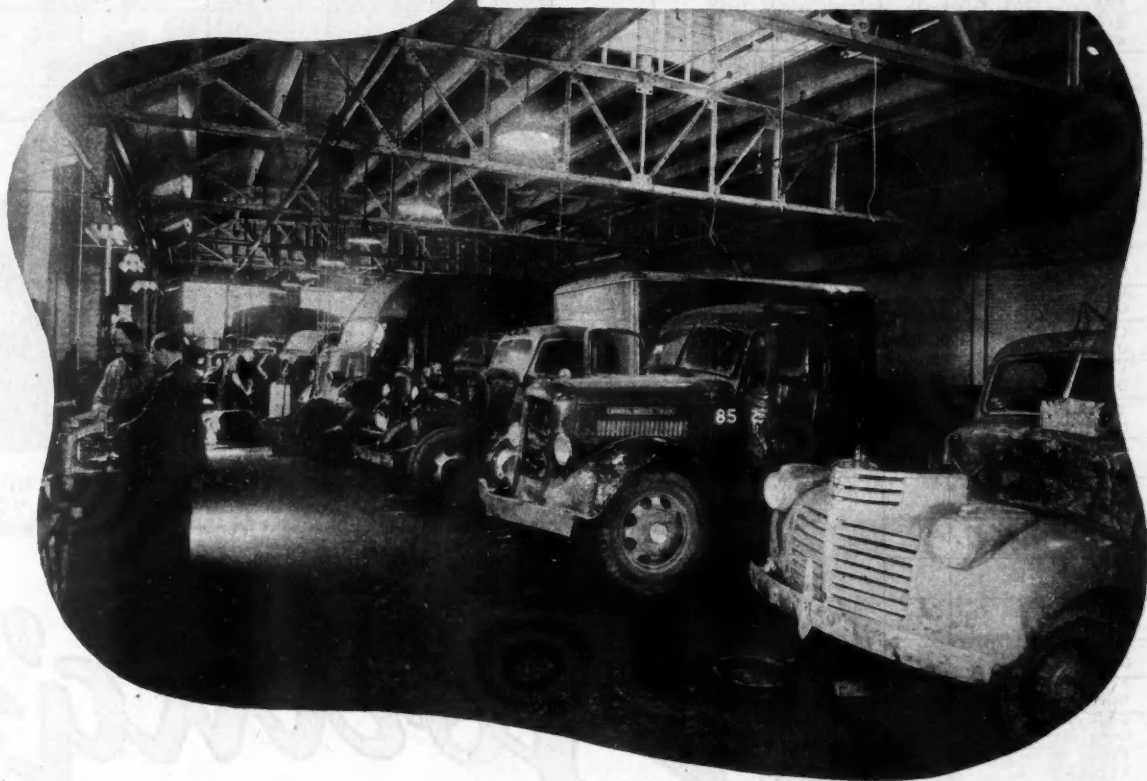
In checking over our service records, we find that the skill, caution, and judgment of the driver have a major bearing on the amount of trouble we encounter in winter operation. We make a special effort to explain such things to them as how improper use of the clutch in cold

by A. F. HOPPENSOCK

Superintendent of Maintenance, Bejin Cartage Co., Detroit

weather may snap an axle and how slipping the clutch causes rapid wear of the facing. In addition, we give each driver a road test, cautioning him about using care in shifting gears and seeing that he knows how to apply brakes on slippery footing.

We start getting ready for winter along in the summer, when we buy our anti-freeze material in barrel lots. It is easier to obtain then, and we generally can get a better buy. At present, we are using an alcohol-base type because we find it more economical to use than the permanent types. This is true principally because of more frequent accidents by new drivers and also because of the



MAKING USE OF RECORDS

Keeping drivers on their toes by winter driving tests is only one of the methods Bejin Cartage employs in avoiding unnecessary maintenance. Shop records, for example, are not used merely for computing costs. Their use is extended to avoiding repetitive breakdowns. On this point, the author says:

"We believe that a complete record of our service operations is extremely helpful in tracking down and eliminating factors that contribute to repetitive breakdowns.

"From this we often trace the breakdown to a definite driver or mechanic, and take the matter up directly with the responsible person . . ."

inherent vibration of trucks, both of which cause leaks and the consequent loss of cooling fluid.

During the late fall, we get a weather report every two hours from the U. S. Weather Bureau, and when the temperature approaches the freezing point, we add a gallon of anti-freeze. Later we add enough to hold against temperatures down to zero. This gives adequate protec-

The photographs reproduced above show two other types of vehicles that make up the diversified Bejin fleet. The large illustration shows a portion of the well-lighted shop

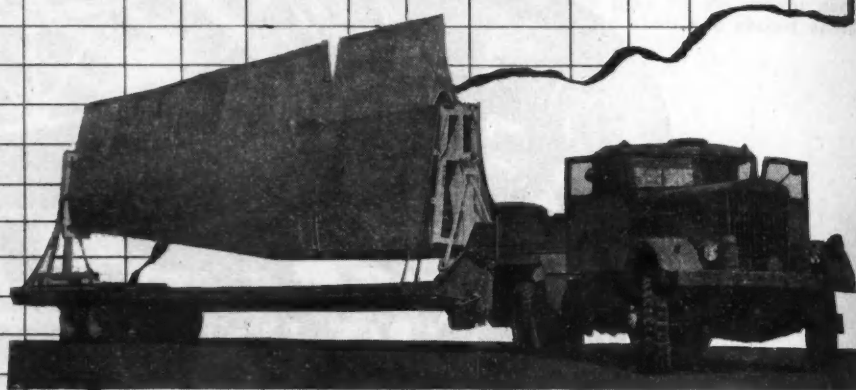
tion, since our trucks are kept in a heated garage when not in use. Radiators and cooling systems are checked for leaks and cleaned before the anti-freeze is added.

We do not use radiator curtains, although we sometimes place a strip of cardboard in front of the lower part of the radiator during extremely cold weather to hold up the motor temperature. As a rule, only our highway trucks are equipped with thermostats, and these are of a non-adjustable type, so that they require no attention other than inspection to see that they are working properly.

About the first of September we start checking over the electrical system. Since our generators are equipped with voltage regulators or cutouts, there is no need to set up the charging rate for winter driving. Spark plug settings are kept at the manufacturer's specifications. Batteries are checked regularly once a week with a hydrometer and if the specific gravity falls below 1150 the battery is removed for recharging. If it will not take a

(TURN TO PAGE 88, PLEASE)

MAJOR WORK RECORD												UNIT NO. _____			
DATE _____															
LAST RECORDING OFF PREVIOUS SHEET															
	DATE	SPEEDO. HOURS	MECH	DATE	SPEEDO. HOURS	MECH	DATE	SPEEDO. HOURS	MECH	DATE	SPEEDO. HOURS	MECH	DATE	SPEEDO. HOURS	MECH
Rebuilt Motor Installed															
Main Bearings Size _____															
Con Rod Bearings Size _____															
New Block Yes No															
Block Rebores Size _____															
Pistons Replaced															
Timing Gears Insp or Replaced															
Valves Ground															
Rings Changed															
Oil Pump Overhauled															
Water Pump Overhauled															
Distributor Overhauled															
Carburetor Overhauled															
Clutch Overhauled															
Transmission Overhauled															
Compound Tran. Overhauled															
Differential Overhauled															
Hoist Overhauled															
Generator Overhauled															
Starter Overhauled															
Voltage Regul. Overhauled															
Front Axle & Spindle Overhauled															
Steering Gear Overhauled															
Front Axle Aligned															
Drive Line Overhauled															
Left Front Brake Relined															
Right Front Brake Relined															
Left Rear Brake Relined															
Right Rear Brake Relined															
Master Cylinder Overhauled															
Wheel Cylinders Overhauled															
L.F. Spring Changed															
R.F. Spring Changed															
L.R. Spring Changed															
R.R. Spring Changed															
Speedometer Overhauled															
Radiator Overhauled															
Refinish Outside															
Refinish Inside															
Bed Replaced															
Top Replaced															
New or Rebuilt Battery Installed															
Shocks Overhauled															



This tractor and semi-trailer is used in heavy hauling of plane sections between plants. Left, a 9 x 12-in. form used in checking and recording the case history of the truck

Boeing's

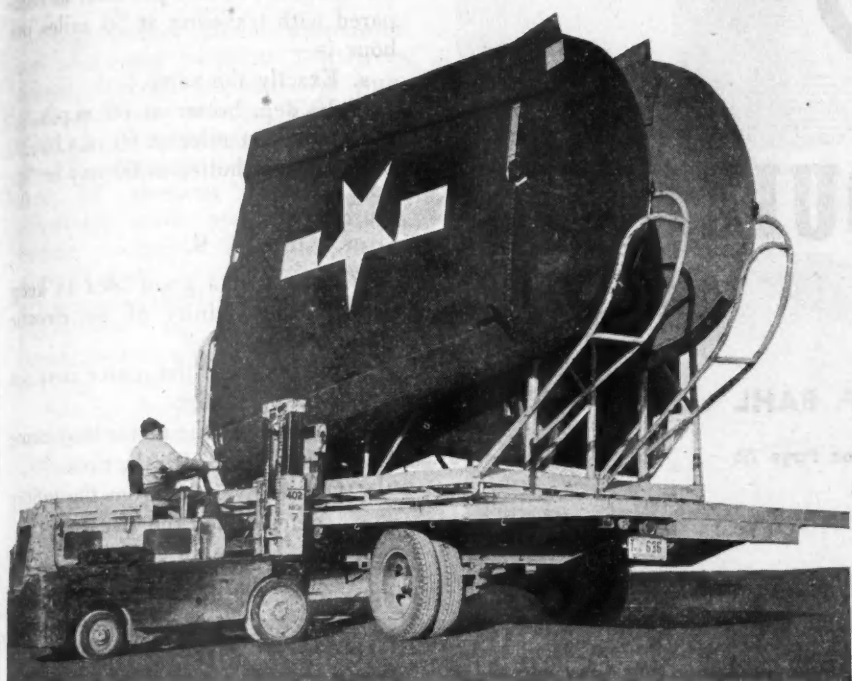
Truck PM Control

Few simple forms insure thoroughness. Major

by FRANK G. JOHNSON &

General Foreman, Automotive Maintenance Dept., Boeing Aircraft Co., Seattle

WHEN the Army ordered immediate mass production of Boeing Flying Fortresses, the famous B-17s, one of the greatest manufacturing programs ever attempted, it meant it. To meet the heavy schedule set to accomplish what was demanded, company officials realized every minute, every short cut to step up output, had to be taken advantage of. Methods of production considered modern before the war were scrapped over night in order to streamline the vast undertaking. Speed, speed and more speed was the all-important factor



This lift truck is shown unloading outboard wings for the Flying Fortress from a truck at the Boeing factory. This type of unlicensed stock averages 60,000 hours per month

THE TEST OF A GOOD PM

"We sometimes have visitors who attach the wrong significance to the small amount of repair work going on in the department at one time. They feel that, with a rolling stock as large as ours, the mechanics should be working like beavers, where, as a matter of fact, if the preventive program is working smoothly, there should be little to repair because equipment has not had a chance to need repair.

"We have units operating today that date back two years, with hundreds of thousands of miles behind them, running as smoothly as those most recently purchased. No, we're perfectly happy when the shop is empty of repair jobs because that is the real test of any preventive program."



Frank G. Johnson



Jake Churchill

Speeds B-29s to War

work record so successfully anticipates wear that repairs, other than PM, are unusual.

JAKE CHURCHILL As Told to **AL JACOBSON**

Foreman, Automotive Maintenance Dept., Boeing Aircraft Co., Seattle

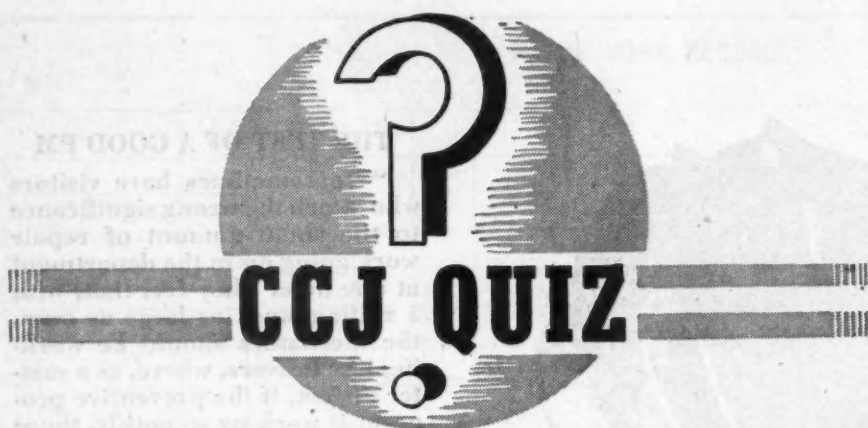
so Boeing "took to wheels" to reach the skys in the direction of Berlin and Tokio.

To keep the thousands of "wheels" moving smoothly and rapidly they inaugurated a modern automotive maintenance preventive program which could match stride for stride the terrific pace set by an organization destined to build planes that would revolutionize air warfare.

Of the several Boeing plants in various parts of the United States and Canada, perhaps typical of them is Plant No. 2 in Seattle, Wash. Here, 741 individual units

of rolling stock are constantly on the move hurrying the thousands of items of equipment and material to the many assembly lines all over the plant. Although the plant is all under roof, it is large; how large we can't say because of military censorship. However, it is permissible to say that it covers several square blocks. Thus, getting around it in a hurry is a job which only the automotive maintenance department could make possible for any length of time.

(TURN TO PAGE 78, PLEASE)



CCJ QUIZ

by **ROBERT F. BAHL**

Correct Answers on Page 72

Try your skill at this month's CCJ Quiz. It's all about truck tires and how to take care of them. Each question is worth 10 points.

1.

A 100 per cent normal load on your tires will give you 100 per cent normal service, but a 20 per cent overload will result in—

- 120 per cent normal service.
- 80 per cent normal service.
- 70 per cent normal service.
- 20 per cent normal service.

2.

Proper spacing of dual tire is important. If the space between the duals is too small—

- There will be insufficient cooling air between the tires.
- There will be excessive dragging and scuffing each time a turn is made.
- Tires will be hard to remove.
- The outside dual will not carry its fair share of the load.

3.

Do you think tire rotation is a nuisance? Maybe so, but if you want all of your tires to live to a ripe old age, you'd better give them a change of scenery once in a while. But, here's the question: With normal wear and average loading, mark in the percentage of the total wear on each of the four tires of a truck. Count $2\frac{1}{2}$ points each time you estimate within 5 percentage points of the correct answer.

Right front — per cent
Left front — per cent
Right rear — per cent

Left rear — per cent
Total 100 per cent

4.

Did you know that tires can wear from the inside out? Chief cause of this abnormal wear is—

- Overloading.
- Reversed camber.
- Excessive speed on curves.
- Dragging brakes.

5.

If you follow manufacturers' recommendations, on long runs in hot weather you will—

- Reduce the air pressure en route.
- Increase the air pressure en route.
- Maintain the air pressure.

6.

You have some tires that you wish to put into storage. You have your choice of four places only. Which will you take?

- Warm place.
- Cool place.
- Damp place.
- Sunlit place.

7.

You can be a tire doctor on this one and diagnose the causes of each of these tire diseases. Match the various conditions on the left with their causes on the right. You score one point for each correct mating.

- Wear along outer edges of tread.
- Wear in center of tread.
- Wear on one side of tread.
- Irregular cupping wear.
- Feather edges on tread blocks.
- Gouging on sidewalls.
- Inside cords pulled loose.
- Softening of tread rubber.
- Cris-cross fabric break.
- Excessive chafing in bead area.
- Chains applied too tightly.
- Excessive camber.
- Faulty rims.
- Gasoline and oil drippings on garage floor.
- Overinflation.
- Running a tire when soft or flat.
- Stone bruise.
- Toe-in or toe-out misalignment.
- Wobbly wheels.
- Underinflation.

8.

The temperature of your tires when traveling at 60 miles per hour as compared with traveling at 30 miles per hour is—

- Exactly the same.
- 10 deg. hotter at 60 m.p.h.
- 10 deg. cooler at 60 m.p.h.
- 48 deg. hotter at 60 m.p.h.

9.

Why isn't it a good idea to keep tires in the vicinity of an electric motor?

- Sparks from the motor may set the tires afire.
- Oil used on the motor may come in contact with the tires.
- Ozone given off from the motor deteriorates the tires.
- The vibration of the motor weakens the tires.

10.

Here are five statements, some true, some false—or maybe all true or all false. For each statement you judge correctly, add two points to your score.

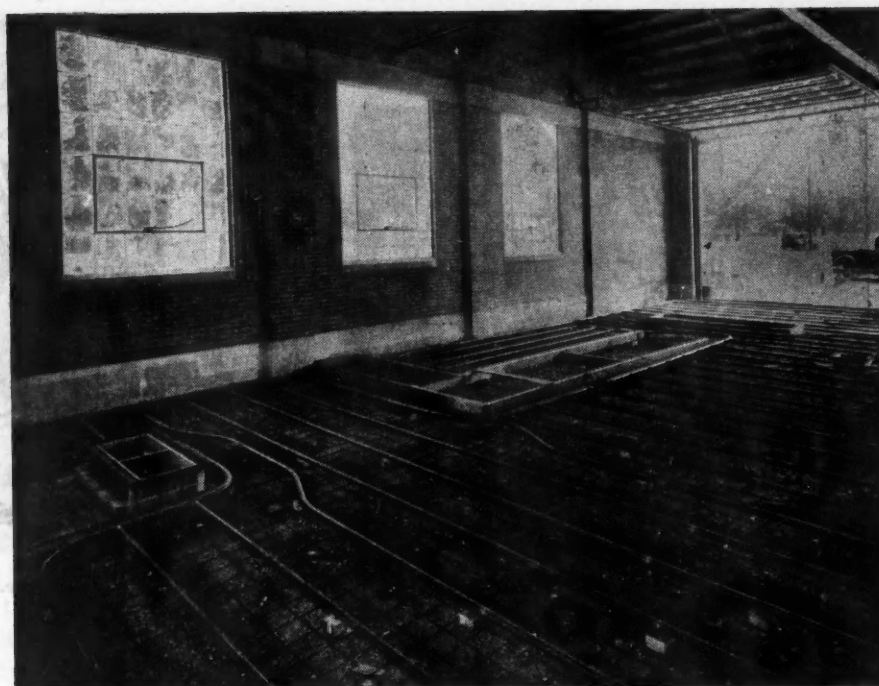
- The correct rim size for a 6:00-20 tire is 5 in. True or False?
- For best service, as much of the load as possible should be placed directly over the rear wheels. True or False?
- Overinflated tires result in a waste of gasoline. True or False?
- Valve caps should always be tightened with pliers. True or False?
- New tires should be "broken in" on wheel positions where they are least overloaded—preferably on the front wheels. True or False?

FOR POSTWAR PLANNERS

Progressive fleet operators are planning postwar improvements that go beyond the purchase of new trucks. Construction of new maintenance quarters, modernization and expansion of present shops, high efficiency tools and equipment, better natural lighting, more air and more free working space are high on the lists because they contribute to more efficient maintenance which will keep operating costs low.

Not to be overlooked is the mechanic's comfort. He works better and produces more when he is comfortable. Lost time due to ill health is reduced.

This article points out the practicability of the latest development of heat engineering—concealed radiant heating. It concentrates heat where it is needed—at floor level—instead of piling it up at the ceiling. The article deals with facts determined from over 1000 installations. The results will be of interest to all fleet operators.



Typical wrought iron piping layout for heat-radiating floors. Obstruction at left provides for a floor drain. Foundation at right accommodates truck hoist

Heat-Radiating Shop Floors Bring Comfort, Save Money

**Postwar heating to make entire floor a
warm, dry, draftless radiating surface.
Cuts heat bill 10 to 30%, using any fuel**

INSTEAD of crawling about on an icy floor and shivering on the "double quick" as the big doors swing open on winter days, the automotive mechanic of the future will perform his duties in a building transformed into a healthful, comfortable, attractive workshop by concealed radiant heating.

That this is not another pipe-dream concocted by visionary postwar planners is assured by architects and heating engineers who already have designed and installed such systems. Engineering problems have been licked and the new heating arrangement is ready for widespread adoption as soon as private building revives.

Radiant heating, of which there are now more than 1000 installations in this country, has promised from the beginning to revolutionize commercial garages. Although requiring no new or untested materials, it is radically different from all other heating systems.

It consists of a series of under-the-floor coils or grids of wrought iron pipes through which hot water is cir-

culated. Instead of having a few high temperature surfaces to heat the air in the room, the entire floor becomes a low-temperature heat-radiating surface.

One of the latest garage structures to adopt radiant heating is that of Lindner & Wood, of Salt Lake City, distributor for White Motor trucks in Utah, Idaho and Wyoming.

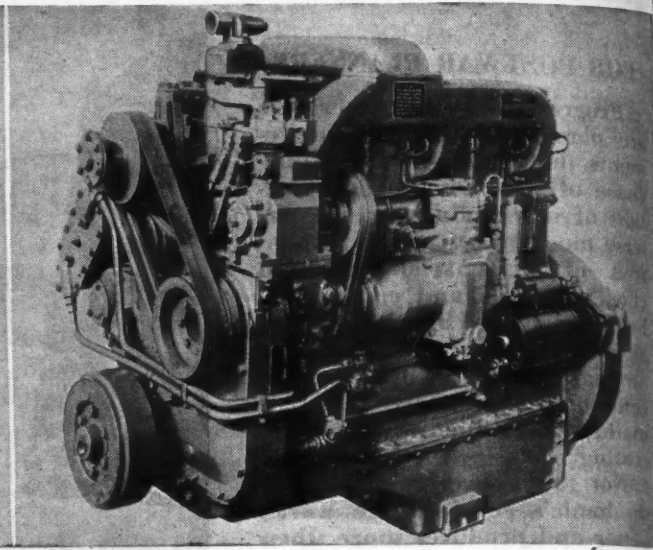
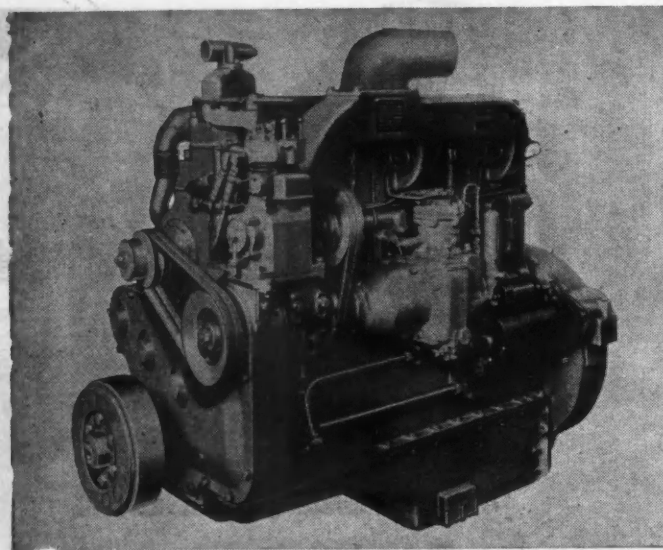
The brick building has 7315 ft. of floor space, more than two-thirds of which is occupied by the service department (5552 sq. ft.). There are also a parts department and office.

The two small departments have a ceiling height of 8 ft. 4 in. whereas the repair department has a 16-ft. height to the bottom of the overhead trusses. The small boiler room is under the parts department.

The wrought-iron pipe was fabricated into a series of grids, placed in a 6-in. concrete garage floor slab.

The system in the Salt Lake City structure provides for individual room temperature control—70 deg. in the parts department, and 60 deg. in the service shop, with outdoor tem-

(TURN TO PAGE 105, PLEASE)



New 743-cu. in. Cummins diesels. Model NH-600, left, develops 200 hp. at 2100 r.p.m. Model NHS, at right, develops 275 hp.

Cummins Announces New High Speed Diesel Engines

More power per pound is developed in the new series, gains registering up to 37½% in hp., with but little increase in weight

FOLLOWING by 13 years the introduction of the Model H, which in 1932 became the first American-built, high speed diesel to be operated successfully in heavy-duty automotive, industrial and marine service, Cummins Engine Co., Inc., of Columbus, Ind., now announces the development of a new series of engines which continues the Cummins trend toward "more power per pound through high speed diesels."

"New," perhaps, is not the word to describe the Series NH-600 and NHS-600 Cummins Dependable Diesels, because they are, in reality, merely higher speed and higher horsepower versions of the familiar

Model H and its supercharged counterpart, the Model HS. The increased output of these newly developed six-cylinder engines is obtained by three major innovations in established Cummins design.

1. By increasing the maximum operating speed from 1800 r.p.m. (Models H and HS) to 2100 r.p.m. (Series NH and NHS).

2. By increasing bore and stroke from 4⅞ x 6 in. (Models H and HS) to 5⅛ x 6 in. (Series NH and NHS), which increases piston displacement from 672 to 743 cubic inches.

3. Dual intake valves are employed to provide the increased air supply needed to assure efficient combustion

of the additional fuel which the engine requires in order to produce increased horsepower. Dual exhaust valves permit the rapid exhausting of gases from the firing chamber.

Comparing the 200 hp. maximum output of the NH engine with the 150 hp. of the parent Model H, it can be seen that these improvements in design have produced 33 1/3 per cent additional horsepower without appreciably increasing engine weight or dimensions. An even greater gain in horsepower (37½ per cent) is revealed by a comparison of the supercharged NHS engine with the supercharged Model HS, with 275 and 200 maximum horsepower output, respectively. Here, too, the increase has been obtained at very little cost in weight or size.

In most respects other than those listed above, this new series of Cummins diesels bears a marked resemblance to the H line. Basic design and construction are the same. Overall dimensions of the block remain unchanged. A high percentage of parts, including crankshaft, connecting rods, main and connecting rod bearings and many more can be used interchangeably in either series of engines.

They also employ the same four-stroke cycle principle of operation; the same exclusive Cummins fuel distribution and injection system; and many of the same accessories. Important, too, from the standpoint of

(TURN TO PAGE 103, PLEASE)

Studebaker salutes America's newspaper publishers

*They've helped conserve trucks
and tires, by reducing
their mileage 43%.*

MEMBERS of the American Newspaper Publishers Association have been commended by the Office of Defense Transportation for the "excellent" results they have achieved in conserving transportation.

Through curtailing delivery services, and through other economies during the war, the 600 member newspapers of the American Newspaper Publishers Association operated 12,000 trucks in 480 fleets during 1943 at a saving of 43% in truck mileage over 1941.

Figures for 1944 are not as yet available but will undoubtedly reveal continued big savings in mileage.

Studebaker extends its congratulations to the newspaper industry for this splendid record. It is in keeping with the patriotic support the newspapers have given all government conservation programs in their news and editorial columns.

How you can get help from Studebaker to conserve trucks and tires

Not only newspaper publishers, but hundreds of other businesses operating delivery trucks have found it a big help to use Studebaker's 48-page handbook—"Maintenance Information for the Delivery Truck Operator."

This booklet applies to all makes of trucks and it's offered free as one of Studebaker's many continuing wartime public services. For a sample copy, see any Studebaker dealer or mail coupon below.



Mail this coupon!

Studebaker Truck Division, Dept. CC-18, South Bend 27, Indiana
Please forward free and postpaid sample copy of "Maintenance Information for the Delivery Truck Operator."

Name.....

Firm.....

Address.....

City..... State.....

STUDEBAKER

*Pioneer and pacemaker
in Automotive Progress*

BUILDER OF WRIGHT CYCLONE ENGINES FOR THE BOEING
FLYING FORTRESS—HEAVY-DUTY STUDEBAKER MILITARY
TRUCKS—THE WEASEL PERSONNEL AND CARGO CARRIER

Bearing Mileage Tripled in Tests of Ford's New Tri-Alloy Type

Greatly increased engine bearing life for Ford truck engines is expected with the development of a new "tri-alloy" bearing by the Ford Motor Co. In composition, this bearing consists of 35 to 40 per cent lead, $4\frac{1}{2}$ to 5 per cent silver, 0.5 per cent iron, the remainder copper. It is estimated, on the basis of dynamometer laboratory tests and under actual heavy duty trucking operations, that the "tri-alloy" bearing will give from two to three times the life of conventional bearings, even under the most severe operating conditions.

Developed at the request of Army Ordnance for installation in military vehicles, Ford anticipates an output of some $1\frac{1}{2}$ million bearings by the end of 1944. Current output is about 500,000 per month. With new production methods developed by Ford engineers, output is at a rate which makes possible deliveries of some bearings to Ford dealers, thus making them available for fleet use. It is expected that eventually they will be able to carry a complete stock. It may be noted that this floating type bearing will be used in Ford, Mercury and Lincoln engines.

Unique feature of the new bearing is the ability to withstand high loading and pounding in high speed, heavy duty service. When used on heavy duty trucks operated between Willow Run and the Southwest, some bearings showed no appreciable wear after 50,000 miles of service. In other cases, wear up to 0.0005 in. has been measured after 40,000 to 50,000 miles. Generally speaking, Ford reports that bearing wear is less for tri-metal than cadmium bearings, with the crankshaft journal showing slightly more wear with tri-metal, although not enough to be significant.

In addition to the road tests, Ford engineers have conducted exhaustive dynamometer tests to prove the performance of the new bearing. A typical block test, under full load was run for 697 hours—230 hours at 2000 r.p.m., 116 hours at 4200 r.p.m., and 351 hours at 3000 r.p.m. When measured for wear, it was found that the wear in con. rod bearings was 0.0012

to 0.0020 in., on crankpins 0.0018 to 0.0023 in.

On a comparative cost basis tri-alloy bearings are more expensive to produce but the company hopes to narrow this differential so as to make their use economical in postwar motor cars.

Studies under way to determine resistance to corrosion under conditions of high acidity in the crankcase give good promise. Some work has been done with protective coatings of lead and Indium but no reports are yet available for publication.

QUIZ ANSWERS

CCJ Quiz on Page 66

1. c. 70 per cent. You overload 20 per cent. Your tires lose 30 per cent. Considering the difficulty of replacing tires, it looks as if you're getting the short end of the deal.

2. a. Cooling will be insufficient—and remember, heat is the worst enemy of rubber. In addition, when the truck is heavily loaded, the sidewalls may rub, wearing off precious rubber. Improper spacing is caused either by oversized tires or by improper rims and wheels.

3. Right front, 19 per cent; left front, 14 per cent; right rear, 38 per cent; left rear, 29 per cent. Weight distribution, of course, would cause some variances, as would the degree to which the roads are crowned.

4. a. Overloading. When a tire is overloaded and overinflated, the stresses and strains are concentrated in a small area. Cords become weakened and torn from within, especially in the tread area, where heat is most intense.

5. c. Air pressure should be maintained. "Bleeding" the air out to restore initial pressure when pressure has risen above normal in a hot tire is a mistake. It builds up flexing and develops still greater heat in the casing. Instead, you should compensate for the added heat by reducing the load and cutting down the operating speed.

6. b. The cool spot is your best bet. Low temperatures are not harmful, but temperatures above 80 deg. are detrimental. Dampness causes rubber to rot and decay. Direct sunlight also causes rubber to deteriorate.

7. 1—j; 2—e; 3—b; 4—i; 5—h; 6—a; 7—f; 8—d; 9—g; 10—c.

8. d. Every mile-per-hour increase in speed means an increase of 1.6 deg. in the heat generated in the tire. A difference of 30 m.p.h. would result in a heat build-up of 48 deg.

9. c. Electric motors give off into the air large quantities of ozone, which causes rapid aging in rubber products. Ozone is a special form of oxygen.

10. a. True. b. False—Load should be distributed evenly over the truck bed, or even loaded slightly heavier toward the front. c. False—Underinflated tires create more road friction, using up more gasoline. d. False. e. True.



While nationwide production of heavy duty army trucks is running approximately 40 per cent behind schedule, frequent shipment of these giant "heavies" like the long convoy shown ready to leave the Detroit plant of the Federal Motor Truck Co., has enabled this concern to meet its Army Ordnance schedule to date.



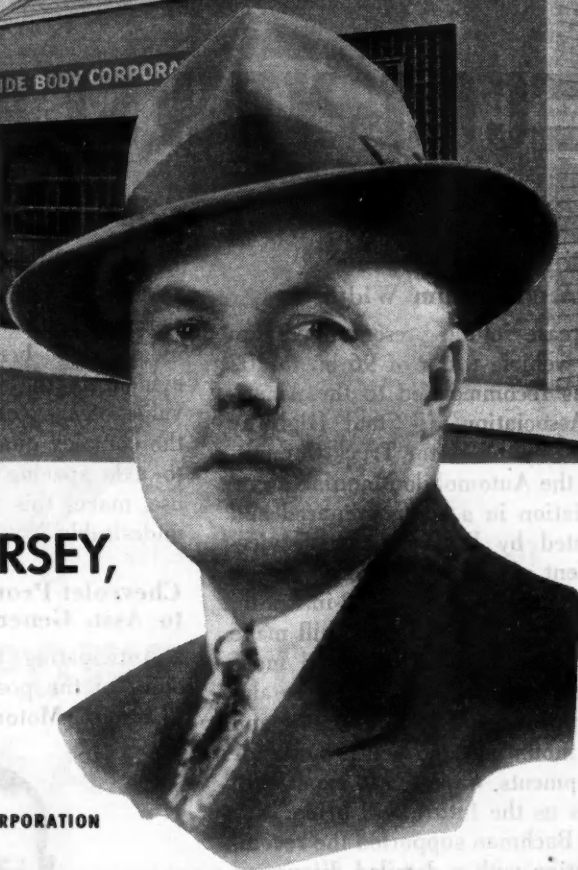
Ted V. Rodgers, ATS president, greets J. W. Lennon, manager of the Tennessee Motor Transport Asso., at the recent Nashville Convention, while four attractive Southern belles look on. Modern tractor-trailer units with g.v.w. of 40,000 lbs. like the heavy-duty 45M new Federal in which Rodgers is seen at the wheel, may soon be permitted to carry capacity loads on Tennessee highways as the result of action taken at the Convention to promulgate modification of present load limit barriers in Tennessee. Indications are that a bill will be introduced at the next session of the Tennessee Legislature to revise present weight restrictions.



A special body built by the Cliffside Body Corporation. Another job handled by Joe Zornik was the remodeling of a K-55 trailer for the Army. On a Wednesday, he received an order to increase the trailer's height and install special equipment; Ls parts were shipped Friday, and the job was delivered the following Monday.



CLIFFSIDE BODY CORPORATION



IN CLIFFSIDE PARK, NEW JERSEY,

Ls JIM* IS

Joe Zornik

OF CLIFFSIDE BODY CORPORATION



There are 92 Ls "Jims" throughout the country.
Do you know your local Ls dealer?

"Jim," a neighbor of yours, was chosen an Ls body builder because of his ability to handle your requirements intelligently—whether you need one or a thousand truck bodies.

Your "Jim" knows local conditions and regulations thoroughly and can design a body to meet your exact individual requirements. Unhampered by shipping problems, he makes speedy deliveries and does a factory job of repairs overnight.

Joseph Zornik, president of Cliffside Body Corporation, is the capable and friendly Ls dealer who serves the neighborhood of Cliffside Park, New Jersey. Forced into continued expansion by the growing needs of his customers, Mr. Zornik now operates several plants. His present shops, including special paint and upholstery units, cover 26 city lots, total 30,000 square feet floor space, and are manned by skilled employees.

Army, Air Corps, and civilian customers get understanding service on their problems from Joe Zornik. Typical Ls service gives them truck and trailer bodies designed to meet individual requirements, and the backing of Ls mass production assures quick delivery.

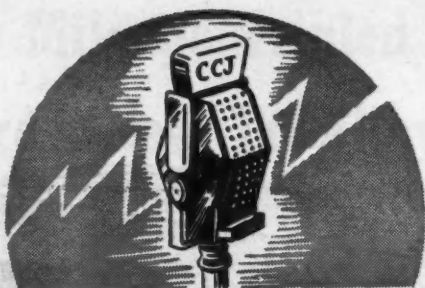
Pre-formed to exact dimensions from light-weight steel and aluminum, Ls bodies offer a unique, high strength-weight ratio. The resulting increase in payload means reduced operating costs, while interchangeable parts for Ls mean quick, easy repair. Operators of national fleets can have Ls bodies built or serviced by any of the 92 Ls dealers located throughout the United States.

It will pay you to know your Ls dealer; write for the name of the man who serves your locality. Lindsay and Lindsay, Adams-Franklin Bldg., Chicago 6, Ill.; 60 E. 42nd Street, New York 17, N. Y.; or Lindsay Structure (Canada) Ltd., Dominion Square Bldg., Montreal.

LINDSAY
Ls **STRUCTURE**

U. S. Patents 2017629, 2263510, 2263511
U.S. and Foreign Patents and Patents Pending

DISTRIBUTORS AND DEALERS THROUGHOUT THE COUNTRY



CCJ NEWSCAST

Truck Makers Advocate 102-in. Maximum Width

Increase in the present maximum motor vehicle width of 96 in. to 102 in. was recommended to the American Association of State Highway Officials by the Motor Truck Committee of the Automobile Manufacturers' Association in a study prepared and presented by B. B. Bachman, vice-president of The Autocar Co.

In recommending the 102-in. width, Mr. Bachman said that it "will make it possible to build safer and more serviceable trucks in permitting valuable improvements in tire, spring and brake mounting, and will provide for developments which past experience teaches us the future will bring."

Mr. Bachman supported the recommendation with a detailed discussion in which he proved that because of the 96-in. width limitation it is "difficult to make a design that will provide for even the 18,000 pound axle limit (adopted by half the States), and with the most desirable construction it is impossible."

The need for both axle load and wheel load restrictions was questioned by Mr. Bachman.

"It is rather difficult for the vehicles engineer to see why these two similar and rather closely related specifications are required," he said. "Admitted that the axle load will not always, and possibly rarely, be evenly distributed between the two wheels, the difference should not be large enough to have any practical significance."

The so-called "bridge formula" for determining permissible gross vehicle or combination weights came in for criticism.

"While it is recognized," said Mr. Bachman, "that this procedure has originated through acceptance in the

field of highway engineering of certain standard methods of calculating the capacity of various types of pavements and bridges, the variation evident in the formulae and in the value of the constant, together with the complex qualifying conditions as to axle spacing which govern their use, makes this form of specification undesirable."

Chevrolet Promotes W. E. Fish to Asst. General Sales Manager

Anticipating the essential importance of the postwar truck markets, Chevrolet Motor Division has an-



nounced the appointment of W. E. Fish to the position of assistant general sales manager. Mr. Fish, who has been manager of the Central Office truck department since 1933, will be in charge of all of Chevrolet's nationwide commercial and truck activities.

Mr. Fish joined Chevrolet in 1931, as city truck manager of the Pittsburgh branch. In 1933 he came to Detroit as assistant manager of the Chevrolet commercial car department, and in the same year was made department manager.

In the 11 years during which Mr. Fish has headed the Central Office truck department, Chevrolet has climbed steadily in truck sales and production to attain one of the top-most positions in the industry.

(TURN TO PAGE 76, PLEASE)



Howard Bellows, left, recently has been appointed eastern division manager of the General Tire and Rubber Co. Bellows has been with General in a sales capacity since 1924



Thomas A. Donnelly, right, of Steubenville, Ohio, recently has been named special sales representative for the Kingham Trailer Co., Inc., Louisville, Ky.



R. W. Spencer, former division manager, has been promoted to vice president in the replacement division of Sterling Aluminum Products, Inc., St. Louis, Mo.

T. A. Kreuser has been appointed service sales manager of the Bendix Products division of Bendix Aviation Corp.



Clayton W. Butterfield, former service sales manager of the Bendix Products division of Bendix Aviation Corp., has been appointed to the division's general automotive sales Staff

Whipple Jacobs, president of the Belden Mfg. Co., Chicago, celebrated his thirtieth anniversary with the organization on Nov. 5. Mr. Jacobs joined the Belden Mfg. Co. as a cost clerk in 1914 and rose rapidly through the ranks. Elected a director of the company in 1931, he succeeded Joseph C. Belden, founder of the company, to the presidency in 1939



HY-POWER
THE
MIDLAND
STEEL PRODUCTS CO.
CLEVELAND, O. - DETROIT, MICH.
PATENTS PENDING



STANDARD MODEL
HIGH POWER VACUUM UNIT

NEW

DEVELOPMENT in POWER BRAKING by MIDLAND

HY-POWER is a new Midland brake improvement combining three time-tested parts in a single completely enclosed unit: vacuum diaphragm chamber—hydraulic vacuum valve—hydraulic slave cylinder.

HY-POWER eliminates special valves, cylinders, levers, complicated close-quarter mountings, all outside mechanism. The sealed HY-POWER unit is not affected by atmospheric or weather conditions. No mud, water, dust or dirt can enter to corrode, rust or unseat valves.

HY-POWER design results in direct applied power—surer, safer braking. Reduces physical effort and gains added power.

Fully compensating hydraulic vacuum valve action permits any degree instantaneous brake application with a corresponding "brake feel."

HY-POWER is easy to install. May be placed at any available place on chassis. HY-POWER is ruggedly constructed—assures trouble-free service for years—requires no lubrication. See your Midland distributor, or write to us for detailed information, specifications and illustrated, descriptive folder.

THE MIDLAND STEEL PRODUCTS CO.
10603 MADISON AVENUE, CLEVELAND 1, OHIO
Export Department: 38 Pearl Street, New York City



MIDLAND POWER BRAKES

CCJ NEWSCAST

(CONTINUED FROM PAGE 74)

AMA Warns Truckers Against Petroleum-Base Brake Fluids

Release by the Government of a large quantity of a special petroleum-base brake fluid, designed for use only in military aircraft, has brought a sharp warning from the Automobile Manufacturers Assn. against the use of unapproved petroleum-base brake fluids in the hydraulic brake systems of automobiles and trucks.

Automotive engineers say that swelling of the rubber cups in brake master cylinders and deterioration of the flexible hose lines can result in a few days if even a few drops of petroleum oil are used in the brake system. The effect of the petroleum is to swell the rubber parts, making them spongy and weak and completely spoiling their effectiveness. Careful cleaning and examination of the brake system, plus replacement of rubber parts will be required in any instance where petroleum fluid has accidentally been used. Safe types of hydraulic brake fluid have a castor oil base which has no harmful effect on rubber parts. Petroleum-base fluids are used in aircraft satisfactorily because brake hose and similar parts are made of synthetic rubber, which withstands the effects of oil.

Thousands of gallons of the aircraft-type fluid may already have passed into the hands of jobbers, dealers and service stations throughout the country, and vehicle users are warned not to use the fluid in passenger cars and trucks. The Association has expressed the fear that the destruction of rubber parts of the braking system through use of the fluid will create a demand for natural rubber parts that cannot be met during wartime, and might conceivably force many vehicles off the highway.

E. E. Springer New Fruehauf Regional Manager in Southeast

E. E. Springer has been appointed Fruehauf Trailer Co.'s regional manager in the southeast. He will have under his supervision 12 of the company's branches located in this section of the country and will make his headquarters at the Charlotte, N. C., branch.

Mr. Springer has made valuable

contributions to the cause of better laws for motor transport throughout the South. His appointment is in recognition of his splendid record with the company and in line with the Fruehauf policy of making advancements from within the organization.

Prest-O-Lite Opens New Office

Prest-O-Lite Battery Co., Inc., of Indianapolis, Ind., has opened a new sales office in New York City, according to an announcement made by A. A. Feldman, sales manager.

The new office, located in the Chrysler Building, is headed by James A. (Jim) Franklin, division manager. All company business for territories in Eastern Pennsylvania,

New Jersey, New York, Massachusetts and the New England States will be handled from the new office.

Conroy Named President Rice, Vice President, Oil Purifier

Lt. Col. Raymond W. Conroy, of the U. S. Marine Air Forces, who is widely known in the automotive industry, has been named president of Oil Purifier, Inc., of Oakland, Calif. At the same time, Harold G. Rice, former manager of Pioneer Motor Bearing Co., was appointed vice president and general manager of plant production.

Sales manager Ken Trowbridge continues in active charge of sales and distribution of Oil Purifier, Inc., products.

(TURN TO PAGE 87, PLEASE)

1944 Monthly Production of Trucks and Truck Tractors*

1944	LIGHT Under 9000 lb. G.V.W.		
	Civilian	Military	Total
January.....	21,479	21,479	21,479
February.....	21,085	21,085	21,085
March.....	21,081	21,081	21,081
April.....	19,481	19,481	19,481
May.....	19,338	19,338	19,338
June.....	20,830	20,830	20,830
July.....	20,269	20,269	20,269
August.....	23,441	23,441	23,441
September.....	21,367	21,367	21,367
October.....	18,534	18,534	18,534
Total—10 months...	206,915	206,915	206,915

	MEDIUM 9000 to 15,999 lb. G.V.W.		
	Civilian	Military	Total
January.....	1,985	12,806	14,791
February.....	1,798	9,940	11,738
March.....	3,317	8,303	11,620
April.....	6,245	8,649	12,894
May.....	7,310	7,007	14,317
June.....	9,319	6,625	15,944
July.....	8,582	6,031	14,613
August.....	10,248	5,746	15,994
September.....	10,034	6,300	16,334
October.....	9,429	6,144	15,573
Total—10 months...	86,257	75,551	143,818

	HEAVY 16,000 lb. and over, G.V.W.		
	Civilian	Military	Total
January.....	543	21,783	22,326
February.....	960	21,870	22,838
March.....	1,311	22,347	23,658
April.....	1,906	21,438	23,344
May.....	1,888	21,277	23,265
June.....	2,607	21,805	24,412
July.....	2,661	23,967	26,628
August.....	2,283	26,847	29,130
September.....	2,243	25,086	27,329
October.....	3,641	26,375	30,016
Total—10 months...	20,131	232,637	252,768

TOTAL—ALL WEIGHTS			
	Civilian	Military	Total
January.....	2,528	56,068	58,596
February.....	2,766	52,905	55,671
March.....	4,628	51,731	56,359
April.....	8,151	47,568	55,719
May.....	9,298	47,622	56,920
June.....	11,926	49,260	61,186
July.....	11,243	50,297	61,540
August.....	12,511	56,034	68,545
September.....	12,277	52,765	65,042
October.....	13,070	51,053	64,123
Total—10 months...	86,398	515,303	601,701

*—Automotive Division, WPB Data include Jeeps, military ambulances and wheel-drive personnel carriers; half-tracks and armored cars are excluded.

Goodrich's New Design Tire

Any kind of highway or no highway will do for this new design tire announced by Goodrich. A special button tread gives maximum traction when going through snowdrifts or rutted roads, while still running smoothly over improved highways.



H. F. Howard, left, general manager of Chevrolet factories in Flint for the past seven years, has been appointed vice president in charge of manufacturing of Fruehauf Trailer Co.

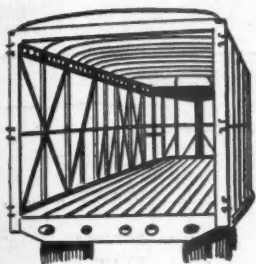
William T. Kelly, Jr., right, has been appointed vice president of the Kellogg Division of the American Brake Shoe Co.



Ralph R. Gunderson has been appointed sales manager of the Brake Division, Aircraft Accessories Corp., with headquarters in Chicago.

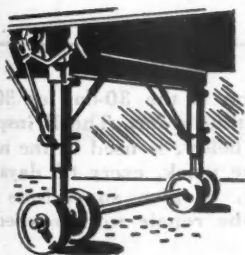
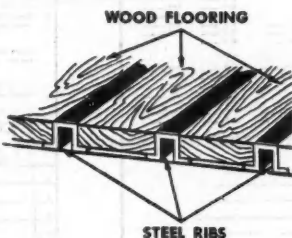
Here's Why YOUR FRUEHAUF CARRIES MORE PAYLOAD LONGER AND AT Lower Cost!

Your Fruehauf Trailer is a highly - developed, scientifically - engineered product. This, plus the fact that it is precision manufactured and not merely assembled, is why it will carry more payload longer and at lower cost. For example . . .



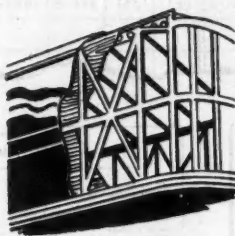
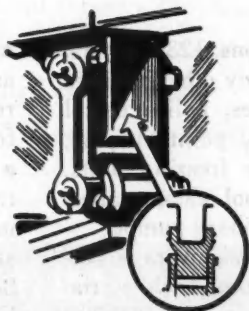
1 INTEGRAL - FRAME CONSTRUCTION—Scientific unit-design has created a vehicle in which every body-skeleton and chassis-frame member contributes to form a sturdy, rugged structure enclosed by stress-free panels. No steel is wasted—every pound works. Result—more strength, more miles, more payload per dollar.

2 STEEL-RIBBED FLOOR—Has $2\frac{1}{2}$ times the strength of an all-oak floor of same thickness. Ten high-tensile steel ribs welded to every cross member tremendously increase the strength and durability of the whole Trailer structure. Individual boards are easily replaced.



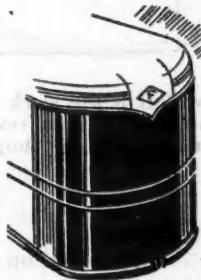
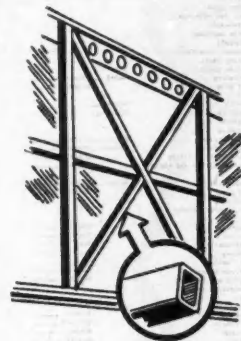
3 VERTICAL SUPPORTS—These 2-Speed Supports are mounted out under the body side framing—NOT inboard on a narrow chassis, permitting wide overhang of the load. Result—great stability, twisting and racking stresses eliminated.

4 CONCENTRIC LOADING—Fruehauf specially designed spring hangers are mounted directly under the load-carrying frame side-rails—actually an integral part of the frame—riveted through both web and side flanges. Rivet stress is reduced to a minimum. (Practically no shear!) Twisting stresses which shorten life, common with ordinary offset mounting are eliminated. Road stability is gained.



6 UPPER FRAMING—The Fruehauf design employs rectangular alloy steel tubing for the upper framing. This tubing has equal strength as a column, strut or tie. It is efficient under compression as a column or strut— or under tension as a stringer. This tubing makes a husky skeleton.

7 EASE OF REPAIR—All frame-tubing is identical and new tubing, cut to size, can readily be welded in place. Here is a tremendous service advantage.



8 RUST PROTECTED—From axle to roof, all metal which might come into contact with the weather is thoroughly cleaned and painted. Even the "skeleton" receives a rust-protecting coat.

Outside panels are electrolytically zinc-coated to give protection against rust, corrosion, and to form a perfect "bond" for the 3-coat enamel finish, baked in temperature-controlled ovens.

These typical examples of Fruehauf's scientific engineering and precision manufacturing explain why Fruehauf Trailers continue to pay dividends for hundreds of thousands of miles beyond the service of ordinary assembled units.

World's Largest Builders of Truck-Trailers
FRUEHAUF TRAILER COMPANY, DETROIT
Service in Principal Cities

FRUEHAUF TRAILERS

"Engineered Transportation"

REG. U. S. PAT. OFF.

Truck PM Control

TRUCK SERVICE REPORT													
Date													
Unit	Oil	Water	Tires	Horn Lights	Service Man	Mileage	Unit	Oil	Water	Tires	Horn Lights	Service Man	Mileage

[illegible][illegible]

AIR FORCE/NAVY AIRCRAFT INSPECTION ORDER		of 21	
Unit No.		Date	
↓ INSPECTION			
1	Check Motor	Test battery and support terminals	
	Check fuel, vacuum check pump & oil oil lines	Check fan belts, fan and water pump	
2	Check clutch throttle & linkage	Drums & cones check insupport points esp. & rotors	
	Inspect steering system & axle	Tighten axle flange studs	
3	Inspect all springs for breakage	Tighten wheel studs	
	Inspect brake linings and adjust	Inspect and adjust emergency brake	
4	Adjust valves	Check and tighten cylinder head bolts	
	Check for oil leaks Pressure.....Lbs	Check exhaust gaskets lines & muffler	
	Compression lbs		
		1. 2. 3. 4. 5. 6. 7. 8.	
REMARKS		REPAIRS MADE	
1			
2			
3			
4			
REMARKS			

<div style="text-align: center;"> INS. INSPECTION CHECKLIST INSPECTION ORDER </div>		
Unit No.	Inspected By	Date
<div style="text-align: center;"> 1. INSPECTION </div>		
1. Flash welder check rod, & hose connections	Inspect all lighting & lightning wiring	
Inspect Gas, & starter	Check & replace main fuel pump if necessary	
2. Tighten water supports	Tighten wheel nuts	
Tighten water belts.	Diff. pressure shaft for end play & oil seal	
3. Check all engine assembly & bushings	Tighten engine & belts tighten nuts to frame bolts.	
Check front spring center, clips, shackle	Inspect oil pan screws and chains	
4. Check engine	Check and replace tilt cylinder if necessary	
Check all window lifts and door handles	Check and adjust headlights	
<div style="text-align: center;"> REMARKS </div>		
<div style="text-align: center;"> REMARKS </div>		
<div style="text-align: center;"> DATE PHOTO TAKEN </div>		
1		
2		
3		
4		
5		

REMARKS:

At top is the driver's service report. Above left is the work order, an 8½ x 11-in. form used for periodic inspection of all vehicles; its reverse side is at right. Defects are noted on this form and sent to the shop with vehicles

Above at top is the 30-day or 3000 mile inspection order. The B inspection order, below, is used in the next check of the truck, every 60 days or 6000 miles, to give supervisors an idea of the repair work needed

(CONTINUED FROM PAGE 65)

The rolling stock consists of many different types of equipment. Some is meant for heavy hauling of plane sections from one plant to another, there being Nos. 1, 2 and 3 in Seattle; the Renton plant; plus branches in Tacoma, Bellingham, Aberdeen, Huguim, Everett and Chehalis, Wash. Other units are designed for carrying light loads quickly throughout the plants to keep the busy hands of some 40,000 workers going day and night.

Of the 741 units in operation there are 50 trucks, nine truck tractors, 114 car loaders, 13 trailers, 43 passenger

cars, 15 station wagons, 123 scooters, 186 bicycles and many other vehicles including motorcycles, police patrol cars, aisle sweepers, paint strippers, compressors, mobile freezing units, concrete mixers, pool cars, cranes, and mobile and stationary pumps.

The unlicensed stock average 60,000 hours per month while the licensed equipment totals 200,000 miles during the same period. All repair work is done in the one automotive maintenance shop except for insurance jobs which are farmed out.

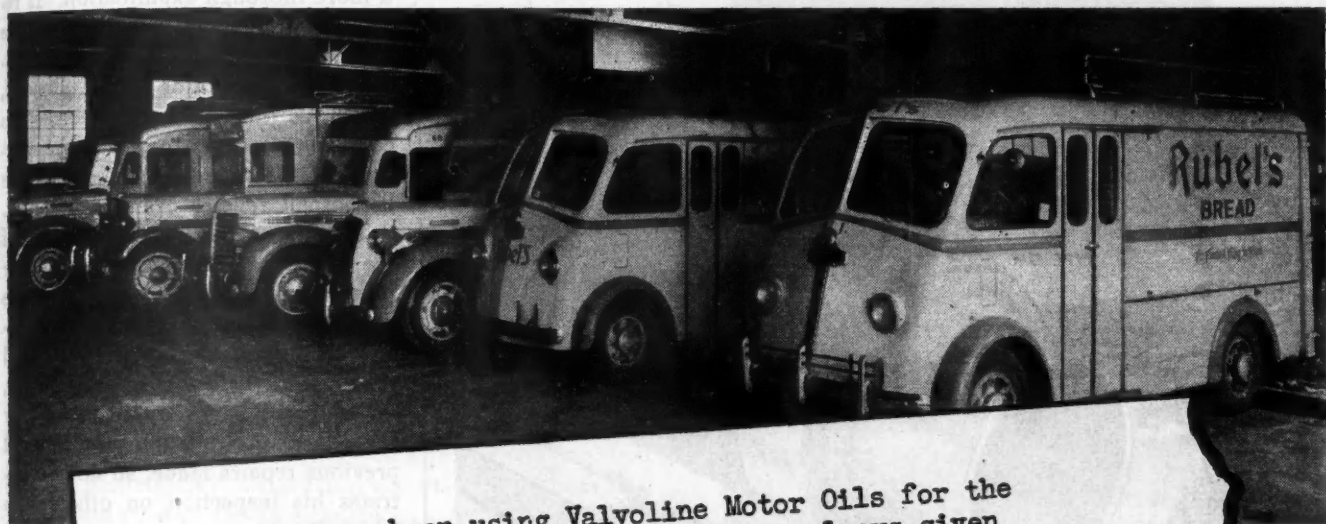
The total number of employees is 70. Of this figure there are 28

mechanics, 13 helpers, 26 lubricators and three washers. The work is directly supervised by four assistant foremen who report to us. We have a decided preference for specialists rather than all around mechanics and many of our men are former racers and car builders. They work three 8-hour shifts—for the wheels at Boeing never stop.

At the present time, the labor situation is satisfactory, although our department is the only one still boasting an all-man crew. Other departments are "manned" largely by

(TURN TO PAGE 80, PLEASE)

7,000,000 Miles of Stop-and-Go Driving —and VALVOLINE stands the test!



"We have been using Valvoline Motor Oils for the last fourteen years, and they have always given us entire satisfaction."

THE RUBEL BAKING CO.

Bert W. Rubel

Bert W. Rubel,
Vice-President

THE RUBEL BAKING CO.
Cincinnati, Ohio

Rubel trucks travel more than half a million miles a year—and bakery trucks, with their innumerable stops and starts, are subjected to extraordinary wear.

If you have a "tough" fleet lubrication

problem, Valvoline Motor Oils and Lubricants and Valvoline Fleet Laboratory Service can save you money and extend the useful life of your equipment. Write your nearest Valvoline office today!

COSTS MORE TO MAKE—COSTS LESS TO USE

VALVOLINE

The 1st Pennsylvania Oil

VALVOLINE OIL COMPANY

530 EAST FIFTH STREET CINCINNATI 2, OHIO

New York-Chicago-Atlanta-Los Angeles-Vancouver

REFINERY IN PENNSYLVANIA

BOEING'S TRUCK PM CONTROL

(CONTINUED FROM PAGE 78)

women and, as production of Boeing B-29 Superfortresses continues to speed up, the demand for more and more workers will grow in the Seattle area.

Our preventive maintenance program was conceived by Erle Barnes, assistant superintendent, and inaugurated two years ago. Prior to that

time, we operated very much like lots of large fleets who wait until a piece of equipment breaks down before doing anything about it. Finally, because breakdowns were costing so much time and money in tied-up equipment, Erle Barnes decided on a program which would enable us to eliminate the threat which was slowing up work all over the plant.

Time and Mileage PM

Our program operates on the periodic and mileage basis. Vehicles are

called into the shop every 30 days or every 3000 miles for what is known as "Inspection A". If the findings disclose repair work is needed, a work order is filled out listing the work to be done. After it is completed, all data is transferred from the work order to a form we call the "Major Work Record".

At the end of 60 days, or after the unit has been driven 6000 miles, it is again called in and goes through "Inspection B," which includes the same tests given in the first inspection, plus a more thorough examination. If repairs are needed this time, they are made and, again, the data is transferred to the Major Work Record, which, as time goes on, becomes the complete "case history" of the particular unit and contains a complete list of all repairs ever made on it.

The Major Work Record is one of the most important features of our preventive plan. It is well taken care of and never allowed to leave the office. It gives us perfect control of all repair work *before it is needed* and, in addition, saves duplicated labor for one glance tells the mechanic all previous repairs made, so he concentrates his inspection on other parts which have never been repaired.

In order to know exactly when to call in a unit, the chief clerk keeps a record of all "due" dates. This is compared daily with a "Mileage Sheet," which shows the mileage checked on each unit each night by the graveyard crew. As the mileage climbs to the 3000 and 6000 stages, he is immediately aware of it.

On our unlicensed equipment, which did not have speedometers, such as carloaders, etc., the running time was previously determined by the operator making a "start and stop" report daily. Now, a time clock is used on each different type and size unit to determine the amount of gas consumed by the hour and the number of operation hours.

During the first six months of the preventive program we kept a daily drivers' report on the licensed stock, so we could build up over-all average figures which would enable us to know the safest distance that, in our opinion, a vehicle could be driven before inspection was necessary. Now, it is no longer necessary to do this, because we are perfectly equipped to keep our plan functioning smoothly. Our effort to build a well-working

(TURN TO PAGE 82, PLEASE)



TYPE GM

DEPEND ON WITTEK

NOC-OUT

HOSE CLAMPS



Type A—Adjustable
For Replacement.

The standard of the industry. Quick-tightening, perfect leak-proof hose connections, for original equipment and replacement. For Radiator, Heater, Booster Brakes and High Pressure hose connections. Wittek Manufacturing Co., 4305-15 W. 24th Place, Chicago, Ill.



Type HP—For High
Pressure Require-
ments.

WITTEK



NOC-OUT

HOSE CLAMPS

NOW!

a truck tire built for longer recap life!

More recaps per tire . . . more miles per recap . . . that's an "extra" you get in every new Fisk Transportation Truck Tire.

Here's why:

Newly developed, more powerful rayon cord now goes into every ply . . . each shock pad. This extra strength protects against internal failures . . . fights rupture growth. Service injuries remain small, repairs cost less, more tires can be recapped.

With their extra strength, these new cords can be spaced in each ply to provide more "rubber-to-rubber" contact to weld tread and carcass firmly together. This extra protection against destructive separation means more miles and more months of service . . . from the original tread to the last recap.

With this combination of big, powerful cords and more "rubber to rubber" contact the new Fisk Transportation Truck Tires not only do their work better than ever before . . . they do it with fewer plies.

Today when tires must be recapped . . . not once, but time and again . . . get a Fisk. It's the truck tire that gives you more recaps per tire . . . more miles per recap.



TIME TO RE-TIRE
Reg. U. S. Pat. Off.

NEW, MORE POWERFUL RAYON CORD . . . protects against internal injuries . . . fights rupture growth. More tires can be recapped. Repairs cost less.

GREATER "RUBBER-TO-RUBBER" CONTACT . . . welds tread and carcass together more firmly . . . guards against tread separation. Adds miles and months of recap life.

FOR MORE RECAPS
PER TIRE
MORE MILES PER RECAP . . . *get a* **FISK**

BOEING'S TRUCK PM CONTROL

(CONTINUED FROM PAGE 80)

preventive maintenance program was not accomplished overnight nor was it perfected without some difficulties.

There is little similarity between the method of operation today and two years ago. Much of our progress was by the "trial and error" method, and, at times, some officials felt the expense connected with maintaining the program was not justified. This

is entirely understandable because the plan was not entirely understood by everyone.

Not Many Breakdown Repairs

We sometimes have visitors who attach the wrong significance to the small amount of repair work going on in the department at one time. They feel that, with a rolling stock as large as ours, the mechanics should be working like beavers, where, as a matter of fact, if the preventive program is working smoothly, there

should be little to repair because equipment has not had a chance to need repair.

We have units operating today that date back two years, with hundreds of thousands of miles behind them, running as smoothly as those most recently purchased. No, we're perfectly happy when the shop is empty of repair jobs because that's the real test of any preventive program. Catch the trouble before it has a chance to develop. Keep all units of your fleet in operation continuously and your fleet will be making money for you, because it will not be laid up in the shop or suffer serious breakdowns on the road that cost a lot of money to repair and more in time lost.

By comparing the number of failures or breakdowns with those on record before our preventive program was inaugurated, we are able to determine exactly the results derived from our present plan. There is little comparison. Failures were common previously but, today, are a rarity.

Probably one of our biggest problems in the old days was bearing trouble. Now, even while using the wartime type of bearings made under WPB restrictions, we have few of these failures. Nor can we say that any particular type or make of engine has trouble most frequently. What few failures we do have, are pretty general and happen only occasionally.

We have found that bearing clearances must be held at closer tolerances.

We are sometimes asked what results we get with the two-piece, welded wartime valve. They are giving us very good service. The same thing is true of radiator maintenance. We do think, however, that crankshafts need to be ground more often; not so much because of any weakness on the part of wartime parts, but because greater degree of accuracy is needed now. Frankly, because of our PM program, we have had little trouble with any parts—they don't get a chance to cause trouble.

Previous to our preventive program, an especially important item with us was salvage. It still is important, but, in many respects, there is not as much salvage work, for there is not as much wear and tear

(TURN TO PAGE 84, PLEASE)

RBC ROLLER BEARINGS

assure
**LOWER
MAINTENANCE
COST**



For years many truck and fleet owners throughout the country have turned to R B C Roller Bearings to bring an end to frequent and costly interruptions of service.

R B C Bearings with rollers and races of through hardened, high carbon alloy steel — at no higher cost than bearings of case hardened, low carbon steel — provide greater load capacities, eliminate bearing failures and cut down topheavy maintenance costs.

They are made in all wanted sizes for all makes of trucks, trailers and buses. Solid and spirally wound rollers, with and without inner and outer races.

The R B C Roller Bearing Distributor in your territory stands ready to serve you.

ROLLER BEARING CO. of AMERICA
TRENTON NEW JERSEY

**ROLLER AND NEEDLE BEARINGS FOR AUTOMOTIVE
AIRCRAFT AND INDUSTRIAL USE**

Here's Where the Trouble Starts!



*And here's where
Trouble Starts on
an Oil Pumper*



When the periodic check-up shows an engine pumping oil, don't guess at the cause of the trouble—don't take a chance of doing just HALF the overhaul job—check for worn connecting rod bearings. Worn bearings let too much oil reach cylinder assemblies. Excess oil is forced into the combustion chambers where it burns to a carbon coating on pistons, rings, spark plugs and valves. With badly worn connecting rod bearings, the best of new piston rings can't stop oil pumping. Give the new

rings a chance to do their job—when you have an engine opened up for overhaul, install new Federal-Mogul Oil-Control bearings at the same time, to restore full power, pep and economy! (Service bearings are a critical war material, use them only where essential. We are doing all we can to keep your Jobber supplied!)

FEDERAL-MOGUL SERVICE • DETROIT 1, MICH.
DIVISION OF FEDERAL-MOGUL CORPORATION

Replace With Genuine

FEDERAL-MOGUL

Oil-Control Bearings



For the Final Push... BUY WAR BONDS NOW!

BOEING'S TRUCK PM CONTROL

(CONTINUED FROM PAGE 82)

on parts. On the other hand, war shortages have forced us to rebuild some parts which formerly we would probably have discarded. That is just one more reason why a good preventive program is essential—it greatly reduces the number of worn-out parts.

We are salvaging fuel pumps, clutch plates, in fact anything that

can be rebuilt. We are great believers in rebuilding as much as possible, but allow only competent mechanics to do the work. If a part is not worn beyond salvaging we attempt to put it back into use.

Acetylene welding is used on body work and general rebuild work. We also use arc welding for general and rebuild work. Crankshafts are more often machined and metal sprayed than other parts.

We find that some parts can be salvaged for less than the cost of new

ones. These include crankshafts, clutch and pressure plates. However, the average salvaging cost is higher than buying new parts. As far as comparative performance is concerned, we feel that competently rebuilt mechanical parts are about equal to the original.

The most important items now being salvaged are bodies, cabs, engines, transmissions, rear axles, radiators, fuel pumps, carburetors and distributors.

As stated before, we use only competent mechanics for rebuild work and we don't use scrap, but only the best new materials obtainable. We find that due to our PM program, mechanics have plenty of time to do rebuild work rather than spend most of their time repairing tied-up equipment.

END

(Please resume your reading on P. 66)

Specify BLOOD BROTHERS UNIVERSAL JOINTS



Backed by over 30 years'
Factory and Field Experience

Whatever your requirements, if your problem is to transmit power at an angle, our field and factory experience of more than 30 years is at your command. Our Engineering Department will gladly submit quotations covering your requirements.

BLOOD BROTHERS MACHINE COMPANY

Division of Standard Spring Company

Allegan, Michigan

Blood Brothers
UNIVERSAL JOINTS
FOR RELIABILITY AND ENGINEERING EXCELLENCE



Increase in Trailer Showrooms Forecast for Postwar Business

"The merchant of tomorrow will bring the showroom to the customer," says Harvey Fruehauf, Detroit trailer manufacturer. "When government priorities on building material are lifted and gasoline and autos are obtained, we can expect greater decentralization of our population. New merchandising methods must be employed to serve not only the wider spread of population but, also, their wider and more diversified needs. This may be accomplished by a showroom on wheels driving up to the housewife's door, where she may purchase frozen fruits, groceries, or dry goods.

Fruehauf has already built special trailers for door-to-door demonstrations of various household appliances. The highly competitive postwar world is expected to turn more and more to motor transport for greater economies in selling and still newer methods of doing business.

Ford Depot for Denver

The Ford Motor Co. will construct a \$500,000 parts depot in Denver, Colo. The depot will serve Ford dealers in five states who now are dependent on Kansas City. The depot will supply parts for 63 counties in Colorado, 30 counties in New Mexico, 18 counties in Wyoming, 14 counties in Nebraska and one county in Texas.

CCJ NEWSCAST

(CONTINUED FROM PAGE 76)

Alligator Output Reaches 1000 Improved Model in Production

The one-thousandth "Alligator" has rolled off the Graham-Paige assembly lines, marking a milestone in the history of the famous amphibious tank which is playing a major role in the invasion of the Philippines.

The company has completed new assembly lines and expanded facilities for doubling production of an improved type, details of which cannot be revealed until it has entered combat. The Alligator is the only vehicle which is able to crawl over sand bars and coral reefs, obstacles which severely handicap other types of landing craft transporting troops to the beachhead.

GMC Announces Competition

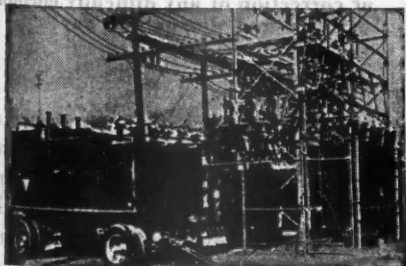
An architectural competition for the design of automobile dealers' places of business in which \$55,000 in prizes will be awarded has been originated by General Motors.

The purpose of the competition is to acquaint architects and builders with the dealers' problems in order that future building plans will take into account the complexities of an automobile dealer's business.

The competition will run from Jan. 1 to midnight of April 16, 1945. Rules and regulations governing the competition may be obtained from the Architectural Forum.

Koppers Company Merges

Koppers Co. and Koppers United Co. merged on November 10, 1944, into Koppers Co., Inc., a newly organized Delaware corporation, which will carry on the business as the suc-



The Westinghouse emergency portable substation shown here is mounted on a Fruehauf Trailer so that it can be positioned by a truck-tractor, which can leave the unit and go on to fulfill other duties

cessor corporation of the merged companies. There will be no changes in the management, personnel, or policies of the company.

B. F. Goodrich Reorganizes Replacement Sales Organization

To provide more effective sales management and control in the tire replacement division of The B. F. Goodrich Co., the nation has been divided into four areas and a division manager named for each. New divi-

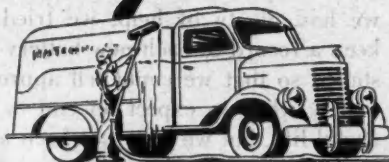
sion managers are: Wilson C. Bray, eastern; John F. Moser, southern; Charles A. McGill, central; and Frank E. Titus, Pacific Coast.

These men will have complete responsibility for the sales of tires, tubes, batteries, heaters, and other auto and home products in their areas. They will direct sales activity among dealers as well as the operations of company owned stores and recap plants.

More News in Back Pages

SPEED WASH FOUNTAIN BRUSH

*Cuts Washing Time
in Half*



Washing trucks and trailers with Speed Wash gets amazing results with little effort and great speed. Clean, fresh water feeds right through the handle and tufts, so that each 12 inch stroke does a complete job of soaking, scrubbing and rinsing. There's no waste motion changing tools and back-tracking over the same surface. You can see how this easily cuts washing work and time in half, does a better job, and also saves the finish.

FULLY GUARANTEED

Put Speed Wash to work on your trucks. If it doesn't measure up to your expectations, return it for a full refund of your money. Order on this liberal basis today. Extend your priority of AA-5 or better, to insure prompt shipment. Make out your check or money order to Milwaukee Dustless Brush Co.

9.45
post paid if
check accom-
panies order.



"Dustless"—"Speed Sweep"—"Speed Wash"—brushes

**Milwaukee Dustless
BRUSH COMPANY**

526 NORTH 22nd STREET, MILWAUKEE 3, WISCONSIN

(Continued from page 63)

This 11 x 14-in. form is considered one of the most important in Bejin's PM program. Actually this is a daily record of maintenance in the shop and on the road. A study of the data enables management to curb preventable work

The only trucks we equip with tire chains are those that have to go out on side roads in the country where they may encounter deep snow. City streets and highways are kept clear, so we do not have any appreciable snow trouble there, and we do not

We also keep a daily road and garage service record which gives us the full story on repairs both on the road and in the garage. This includes the following headings: Truck number, driver, nature of the trouble, whether road or garage call, specified

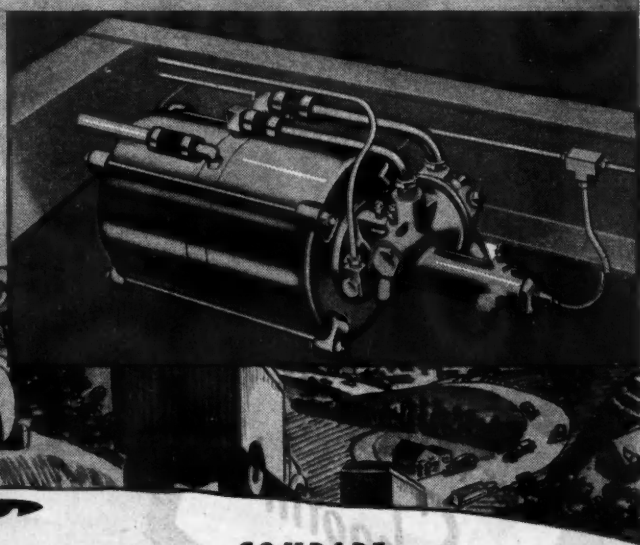
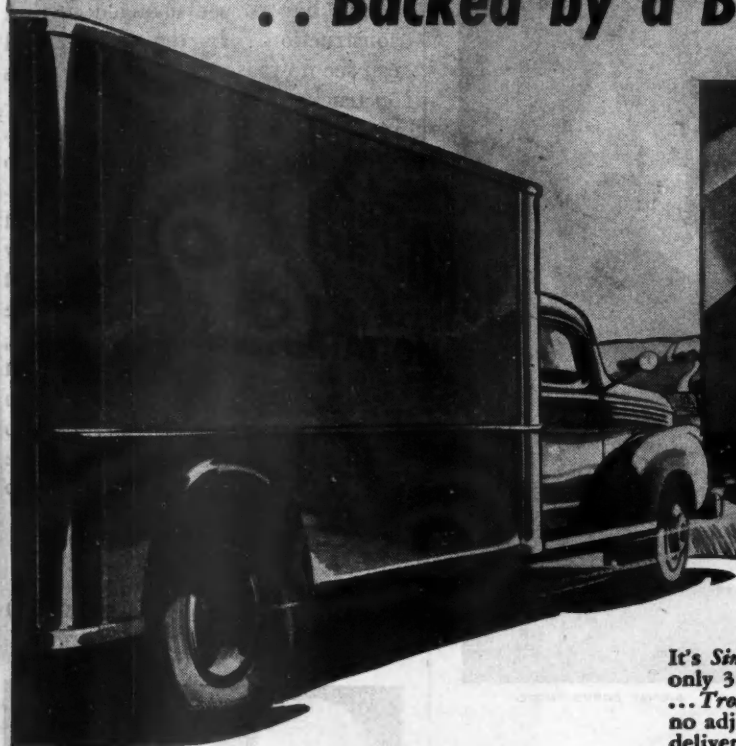
The form reproduced at top is used for trouble calls. Actual size is 4 x 6 in. Directly above is a 5 x 8-in. form which, in effect, amounts to a work order. Drivers use it to request repairs or correction of any difficulty encountered during the day.

(TURN TO PAGE 90, PLEASE)

The Power Braking Unit of the Future . .



. . Backed by a Brilliant Past!



COMPARE

It's *Simple*—a single, compact unit . . . *Easy to Install*—requires only 3 tubular connections . . . *Mounts anywhere* on the chassis . . . *Trouble-free*—completely enclosed, no external levers or links, no adjustment during or after installation . . . *Increases Safety*—delivers great power at a pedal touch, lets driver "feel" the brakes.

Hydrovac POWER BRAKING BY
Bendix
Available now!

Tested in battle all over the world . . . combining more vital advantages than any other power braking unit . . . and available right now to qualified users, this great product from Brake Headquarters deserves a thorough investigation if you own, sell, or service hauling equipment. See your Bendix B-K dealer or write direct to the factory for details and prove for yourself that there's nothing in its field like Hydrovac power braking—nothing else so advanced, so efficient, and so thoroughly proved.

BENDIX PRODUCTS DIVISION OF BENDIX AVIATION CORPORATION • SOUTH BEND 20, INDIANA

"HYDROVAC" AND "BENDIX" ARE TRADE-MARKS OF BENDIX AVIATION CORPORATION

JANUARY, 1945

Use postage-paid card inserted in this issue for free information on advertised products

89

WINTER ROAD TESTS CUT MAINTENANCE

(CONTINUED FROM PAGE 88)

spent on the service job, and what was done to put the truck back into service. From this we often can trace the breakdown to a definite driver or mechanic, and take the matter up directly with the responsible person in an effort to avoid repetition of the trouble.

For example, if the report for a

certain truck shows two broken springs within a comparatively short time, we are pretty certain the driver is loading too heavily. Another report may show clutch trouble with one driver and none with another, which indicates that the man who has the trouble is not handling his clutch properly. Or a battery may go dead and found to be low on water or to have a faulty connection which should have been detected by the man charged with maintenance of that unit. In any event, we have a record

to show who was responsible for the unit, a fact which in itself promotes a sense of responsibility.

The driver also keeps close watch on his truck while on the road, and if he discovers some condition that requires repair, he writes up a repair job ticket upon his return to the garage. This helps to avert a breakdown on the road later on. We also keep a complete history on the repair and maintenance of each truck. This record is kept in a separate folder, and when any overhaul or repair is performed, the date, nature of the work, and cost in time is entered, together with the name of the mechanic who does the job.

Grille and Fender Gripes

While on the subject of trucks, I would like to add a word on what I would like to see changed in truck construction. In the first place, I can see no reason for the fancy grilles on trucks. They are expensive to replace and serve no useful function. Vibration causes the spot welds to break loose, if they are of that construction, and the cast types won't stand any kind of shock. Also, they are a nuisance when you have to get at the radiator. What I would like to see, if we must have fancy grilles, is a heavy type of shield to protect them, similar to what now is put on military trucks. I also would like to see heavier fenders, something like the good old boiler plate we used to have.

END

(Please resume your reading on P. 64)



SIGNAL CORPS PHOTO

● They'll service your fleet and build our trailers when peace comes. Right now they're busy designing... procuring... supplying and maintaining everything that shoots or rolls.

The fact that our Army is the best equipped in the world is largely due to their work. They have made it their business to save lives by giving the Dough Boy what he needs most... when he needs it. These unsung heroes wear few ribbons and rate fewer headlines. Hats off to the men of the Ordnance Department.

EDWARDS IRON WORKS, INC., South Bend, Indiana

★ Edwards is making a sincere effort to contribute its small share in helping these troops... and all of the United Nations... with the material they require. Semi-trailers for combat use are, naturally, included.

EDWARDS



John T. Staker, left, manager of The B. F. Goodrich Co's tire conservation department, has been named Pacific Coast manager of the International Division. He will make his headquarters in San Francisco.

Wilbur T. May, right, a veteran of 18 years in the automobile business, has been appointed Dodge New York regional manager to succeed Edward C. Quinn, who recently was named assistant sales manager of the Dodge Division in Detroit.

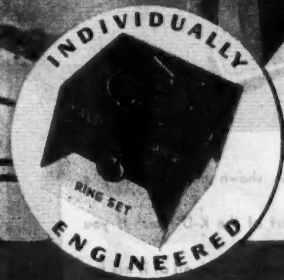
not 2...
not 6...
BUT 26

**For best possible results
in your fleet
26 basic designs**

For best possible results in every piston ring replacement job in your fleet, the rings in Sealed Power Individually Engineered Ring Sets are selected from twenty-six (26) basic designs. Each set contains rings specifically engineered to give peak performance in a particular engine. Sealed Power has been refining these sets over five years—has been producing rings for car, truck and engine manufacturers 33 years. For best results, re-power with Sealed Power motor parts. Sealed Power Corporation, Muskegon, Michigan and Windsor, Ont.

*Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves,
Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts.*

BUY MORE WAR BONDS!



SEALED POWER PISTON RINGS

BEST IN NEW TRUCKS! BEST IN OLD TRUCKS!

WAS THAT ACCIDENT REALLY UNAVOIDABLE?

(CONTINUED FROM PAGE 55)

tiated by drivers who in preparing an accident report reveal their lack of responsibility and that they have very much depended on the "other fellow" to keep them out of trouble. Here and there some driver has frankly said, "Mister, I drive just as well as I know how and this layoff you've given me is not making it

clear how I can drive any better."

In many other fields of industrial activity, training of the men to be put on various jobs is more and more accepted as an essential part of filling the job satisfactorily. But when it comes to driving it seems so easy for operators to stumble into the old pitfall of assuming that the fellow who applies for a driving job, and who has been driving for 10 years, surely knows how to drive well.

Possibly one reason for this is

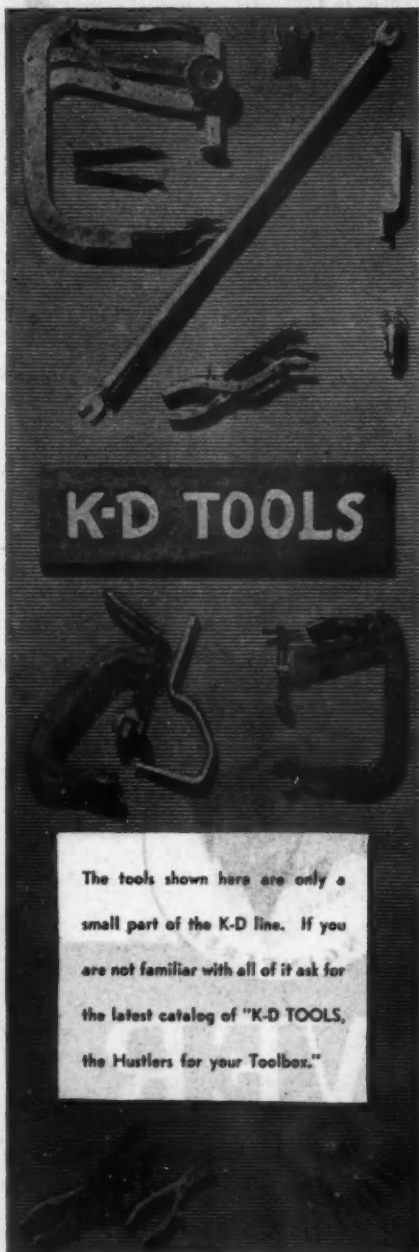
that there is no handy "yardstick" with which to truly measure a driver's ability. Too often it is measured by his willingness to take a chance or make time by doing a little broken field running through heavy traffic. The man's hazy recollection of his own accident record is unreliable because of the tendency to forget the little accidents and those where he considered the "other fellow" was largely at fault. On the other hand, in many sports calling for skill rather than stamina, such as bowling or golf, it is easy to measure one's own ability compared to the expert and we go around with no false ideas of how good we are when our best bowling average is 130 or our golf score is rarely under "par." But when it comes to driving then every one, for lack of a yardstick, rules himself pretty damn good or even an expert and there is failure to place each where he truly belongs.

It should be evident that supervisors occupy a key place in the accident prevention program, for their own thinking is almost certain to be reflected in the driver's thinking and eventual attitude. We would not expect a supervisor to make much headway in accident prevention unless his own thinking is pretty straight. Only then can he hope or be expected to guide and improve the thinking and the attitude of his drivers so that they will operate with greater freedom from accident. Without specific training, the supervisor's attitude toward accidents is largely built around his own personal experience in operating cars and trucks, and his attitude can easily be of the type that there are a lot of "other drivers" who cause all the accidents.

Maintenance, too, enters into the accident picture, and while comparatively few accidents are due to sudden and complete mechanical failure, many can be traced back and associated with one or more maladjustments which, though they do not prevent operation of the unit, make it more difficult to control and operate and thus they become a contributing factor in accidents.

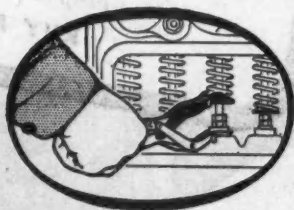
Here again supervisory attitude plays an important part and while it has been generally agreed that drivers should not take out units in unsafe condition and should be held accountable when they do so, still,

(TURN TO PAGE 94, PLEASE)



K-D TOOLS

The tools shown here are only a small part of the K-D line. If you are not familiar with all of it ask for the latest catalog of "K-D TOOLS, the Hustlers for your Toolbox."



An estimated 6 million American cars have gone to the scrap pile since Pearl Harbor. Regular service could have saved many of them. Careful valve service was never more important than it is today!

In producing for war, K-D has never lost sight of the needs for K-D Tools at home. We have made every effort to keep the Jobber supplied. If you can't get the K-D items you need at your regular Jobber's, write to us. We'll put you in touch with a nearby Jobber who can supply you.

You hear a lot these days of the wonderful new cars to come after the war. Whatever they look like, however they're built, you can be sure there will be K-D Tools to service them. Until then, let's all keep "plugging away" and keep buying Bonds.

K-D MANUFACTURING CO.
LANCASTER, PA. AND HAMILTON, ONT.

To all business, large or small...

Postwar business competition is going to be tough. Whether your trucks *make or lose money* for you is going to be more important than ever before.

Today in wartime, the lack of new civilian trucks has thrown a revealing light on the performance and stamina of every make of truck in the United States. Right now is the time to dig into all the facts as they exist—to find out which trucks are standing up best under the toughest conditions trucks have ever had to face.

Now is the time to determine which trucks will do YOUR job in the BEST possible way, at the LOWEST COST during the years ahead.

The phrase "Built like a Mack truck" got into the language because of something real that is *built* into Mack trucks.

Step by step—in materials, design and workmanship—they are deliberately built to work harder—last longer—require less repair than any other truck you can buy.

This is not a "claim," but a fact! It is backed by the records of thousands of wartime Mack owners who have seen Mack's better construction pay off at a time when it was needed most.

They will tell you—in no uncertain terms—that the man who owns a Mack is lucky, and the man who plans to get one is wise.

Essential civilian users can now secure Mack trucks. Ask your nearest Mack branch or dealer for details.



Mack

TRUCKS

ONE TON TO FORTY-FIVE TONS, BUSES
FIRE APPARATUS AND MARINE ENGINES

PERFORMANCE COUNTS

Buy That Extra War Bond Today

WAS THAT ACCIDENT REALLY UNAVOIDABLE?

(CONTINUED FROM PAGE 92)

supervision must realize that many excellent drivers would qualify poorly as mechanical inspectors, and therefore only to a limited extent can drivers be held responsible for taking out equipment only when in A-1 mechanical condition. *The responsibility for first class mechanical inspection must be kept a function*

of maintenance and not be allowed to shift over on to the driver's shoulders. Of course, high grade maintenance always has been a responsibility of the Maintenance Department, but a high grade of inspection is likewise a maintenance responsibility.

Now to get down to the driver and his responsibility for accidents. In January, 1942, the National Safety Council issued Fleet Safety Memo No. 14 setting up new driver award rules and listing a whole series of types of accidents which would be

looked on as avoidable and which would break a driver's record. The rules also set up a five-man committee charged with making final decision of driver responsibility on questionable accidents and these decisions determined whether or not the driver would receive a Safe Driver Award. It has been my privilege to be a member of this committee, and it has been particularly interesting to see the kind of cases presented for review and the attitude of supervisor and driver as written into these cases for they all reflect the degree of responsibility to avoid accident. May I present an example:

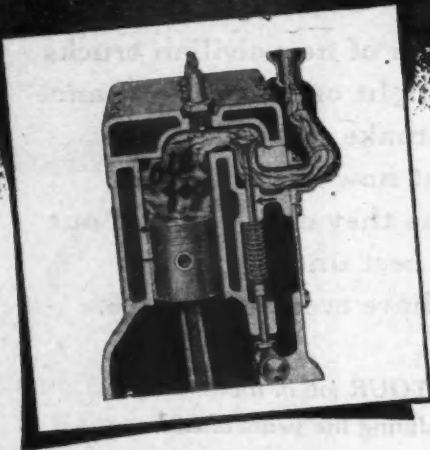
A driver sets his turnsignal, slows down on a rainy night on a two-lane highway in order to make a left turn, and an overtaking passenger car crashes into the rear of the almost stationary truck. Should this accident break the driver's record?

In reviewing this accident it will be realized that decision hinges on what might be *reasonably* expected of the driver in order to have negotiated this left turn safely. I use the term "reasonable" because again it gets at the degree of responsibility or the extent of effort the driver will make to avoid an accident or the extent his supervisor thinks he should make. The supervisor may say, "The driver took every 'reasonable' precaution," but is this really true?

This type of accident submitted was a familiar one, for in the operation of our tank trucks it has been a day in and day out circumstance to turn left off main highways into our pipe line terminals. At one time there were accidents such as that submitted for review. Then warning signs were put up for the "other fellow," warning him that our trucks entered and left these terminals. These signs may have had some legal significance, but they didn't stop the accidents. What did stop them? We brought the drivers together at some of these points and asked what they thought could be done to stop these accidents and what the safest procedure should be. Today the drivers accept it as "reasonable" to go on past their terminal if traffic is coming up fast behind them. They go on down the road to where they can pull off to the right, turn around safely and then come back, making a right

(TURN TO PAGE 96, PLEASE)

Transport Truckers:



Keep Valves, Guides,
Upper Cylinder,
Pistons, Rings

Oiled
thru
Carburetor

by treating your gasoline with

LUBRI-GAS

there's **NOTHING** else like it!

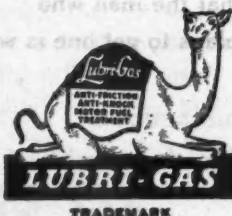
No mechanical system has ever been invented that assures constant, adequate lubrication of valves, guides, upper cylinder, pistons, rings. That is why sticky valves, burned and pitted valve seats, worn rings, and carbon and gum accumulations in upper cylinder are usually the first symptoms of motor trouble. Lubri-Gas Laboratories have developed an exclusive method of chemically processing 40 SAE lubricating oil, so that it enters the combustion chamber, through the carburetor, as an oil fog, and coats all upper cylinder parts with a film of clean oil. The results of this better lubrication are more power, more mileage per gallon, more pep, less wear and repair, freedom from carbon and gum and prevention of overheating and oil pumping. Now when it is so important to keep equipment in operation and out of the repair shop, LUBRI-GAS is indeed a God-send!

AMONG THE USERS OF LUBRI-GAS

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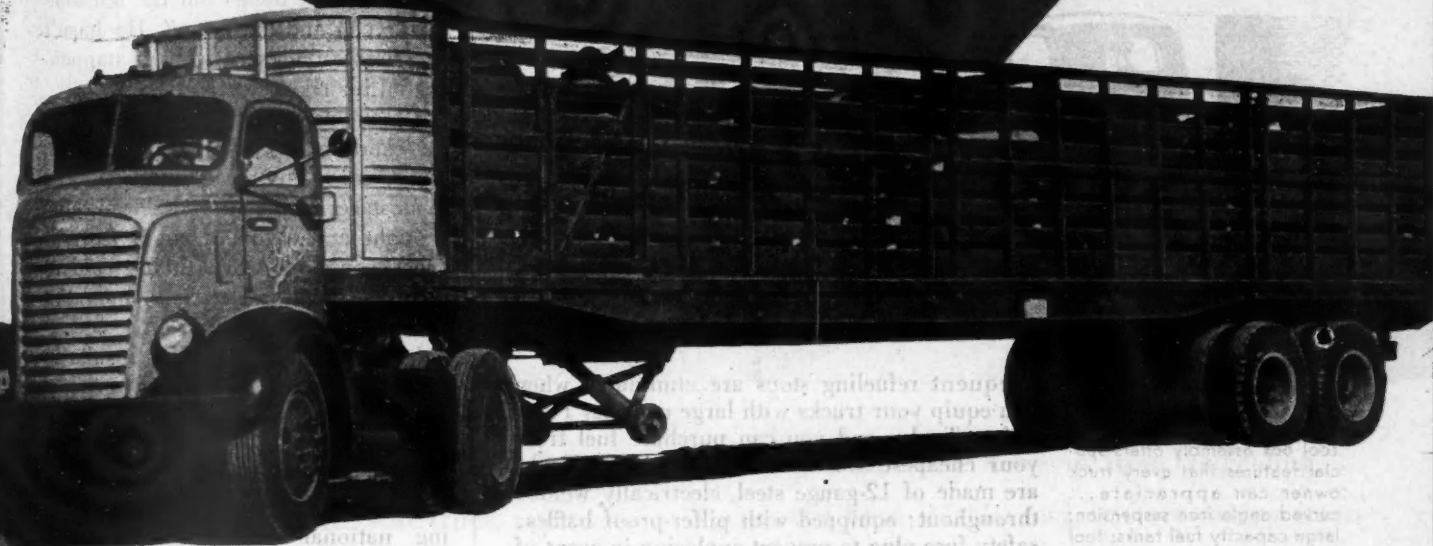
LUBRI-GAS

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Cleans and Lubricates as It Powers the Motor

SHULER AXLES FOR HOBBS TRAILERS!



This 42-foot Hobbs Cattle Trailer hauls more than a carload per trip — which means that each of the 5" Shuler Tubular Axles carries more payload than each axle of an average freight car.

Yes, Shuler Axles are *good*. Size for size and price for price, there are no better axles made.

We'd like an opportunity to prove it.

SHULER AXLE CO., Incorporated, LOUISVILLE, KY.

Export Division: 38 Pearl St., New York, N. Y.

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WAS THAT ACCIDENT REALLY UNAVOIDABLE?

(CONTINUED FROM PAGE 94)

turn into the terminal with safety.

The contest driver who had the accident either had not considered this way of avoiding this kind of left turn accident or felt it quite *unreasonable* that one should be expected to miss his turn and then come back. The fact that the driver's supervisor submitted the case to the Council shows

that either he didn't think differently than the driver or else he was seeking Council backing to aid him in convincing the driver that the accident was unnecessary and avoidable.

It might be well to define what we mean by saying an accident is "avoidable" and try to draw a sharp line of distinction between "being at fault" or responsible for an accident, and "avoiding a collision." The other fellow may be largely at fault, may admit his error and be primarily at fault for an accident—but we are

primarily interested in not who is at fault, but could the collision have been avoided in spite of the error of the other fellow. How hard should we try to avoid the other fellow when he commits an error? We have a real responsibility to avoid him. This is what is in mind when we say a type of accident or type of collision is avoidable. It's a great responsibility, much greater than just being legally right.

Many backing accidents occur because the driver fails to get out of his truck and go to the rear and see exactly what the situation is before he starts backing. Is it reasonable or unreasonable to expect a driver to get out, and possibly on a long backing operation, is it reasonable to expect the driver to get out and check his progress?

Is it reasonable to expect a driver to use both right and left mirrors when backing to avoid those right-side backing contacts which sometimes occur when the driver opens the cab door, hangs out the left side of the cab and backs up? He hasn't the slightest idea of what is happening on his right side.

It's the degree of caution that must be exercised to avoid an accident, which seems to be in question. It's a most serious matter deserving the thought and study of supervisors if they would improve their accident record, for with insufficient study the necessary degree, all too often is considered unreasonable. This results in taking chances or voicing general opinions such as, "If we slow down that much for every intersection we never will get the job done."

Let us realize that there is a growing national attitude that certain types of accidents are unnecessary. We should give heed to and keep in step with this attitude and look on the following type accidents as unnecessary and avoidable as a general rule. However, let's not be hide-bound and where *thorough investigation* shows extenuating circumstances quite beyond the control of the driver, the case should be judged on its merits and may be classified "unavoidable."

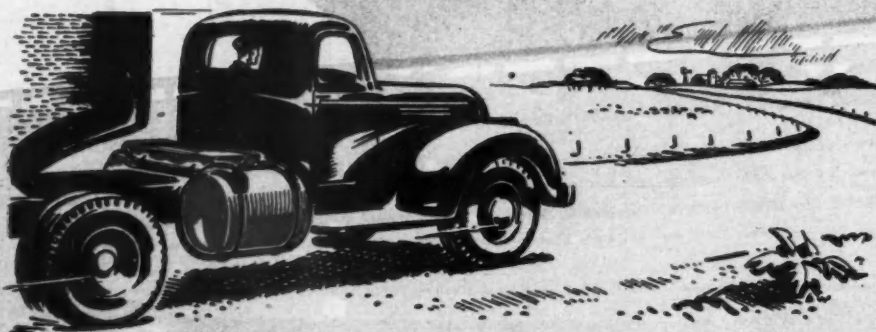
Avoidable Accidents

1. *Backing Accidents*—The care with which a vehicle is backed depends entirely on the driver—whether or not he uses both the left and right

(TURN TO PAGE 98, PLEASE)

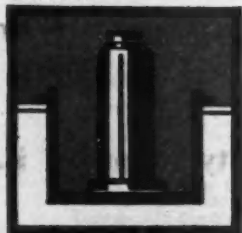
On the long haul—

You Save Money With PRIOR *Safety* TANKS FOR TRUCKS



PRIOR Safety TANKS and TOOL BOX Assemblies

The Prior Safety Tank and Tool Box assembly offers special features that every truck owner can appreciate... curved angle iron suspension; large capacity fuel tanks; tool box across the frame, giving assembly streamlined appearance, can be securely locked, and contains special well to keep hydraulic jack upright. (Illustrated below.) Special battery well can be provided, if desired.



PATENT PEND.

Frequent refueling stops are eliminated when you equip your trucks with large capacity Prior Safety Tanks, and you can purchase fuel from your cheapest sources of supply. Prior Tanks are made of 12-gauge steel, electrically welded throughout; equipped with pilfer-proof baffles; safety fuse plug to prevent explosion in event of fire. The Prior exclusive curved angle iron suspension anchors tanks securely to the truck and gives greater road clearance.

WIRE FOR DISTRIBUTOR'S NAME

OR SEND THIS COUPON TODAY

PRIOR PRODUCTS

Please send complete information about Prior Safety Tanks and name of nearest Dealer.

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PRIOR PRODUCTS

DALLAS, TEXAS.
CLINTON, ILLINOIS

MORE PEP—MORE POWER!



● **A clean motor runs better and lasts longer.**

More than anyone else, bus and truck operators appreciate the truth of this statement.

It's Casite's job to clean out motors and keep them clean. Casite gets rid of sludge and gum, frees sticking valves, fights engine varnish.

In addition, Casite keeps oil from congealing . . . speeds the flow. Result: fast, battery-saving starting, even in coldest weather.

It'll pay you to use Casite *all* the time—in all your units.

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★ *It's a privilege to buy War Bonds*



CASITE

**CLEANS OUT MOTORS
KEEPS MOTORS CLEAN**

WHAT CASITE DOES

- It quickly cleans out harmful sludge deposits
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- Frees sticking valves and rings
- Makes starting easier—even in zero weather
- Helps oil flow smoothly and constantly to close-tolerance areas
- Gives better and smoother performance

WAS THAT ACCIDENT REALLY UNAVOIDABLE?

(CONTINUED FROM PAGE 96)

mirrors, and how careful he is to make certain the way is clear. The driver is in no way relieved of his responsibility to back safely when some one guides him. The guide does not have control of the truck and can neither start it nor stop it.

2. *Collision with Vehicle Ahead*—Having the vehicle ahead stop sud-

denly is a common highway hazard. Collision with such vehicle is believed unlikely when following at a safe distance. It may be properly asked: "What is a minimum safe distance?"

The rule of thumb of one vehicle length for each 10 miles an hour of speed is fundamentally sound, and this following distance is close enough so that, with few exceptions, other vehicles will not cut in front. The advantage of following at a safe distance is twofold—first, one is very unlikely to run into the vehicle

ahead; secondly, one is not obliged to make a severe emergency stop and thus become a target for the vehicle behind, should it be following too closely.

3. *Struck in Rear by Another*—

a. Due to overtaking and passing traffic when close to intersection, then stopping suddenly for red light, or

b. Due to permitting vehicle to roll back in preparation for starting ahead.

4. *Accidents at Intersection*—

a. Driving Straight through Intersection—Collision with vehicles coming from either left or right, regardless of the presence or absence of STOP signs and traffic lights. Traffic lights and STOP signs are signals only and, while any driver who ignores their presence is very much at fault, such accidents can and should be avoided. The basic responsibility for such accidents is on the individual who fails to obey these signals, but this does not relieve us of the responsibility to drive in a manner that will permit us to avoid the collision.)

b. Driving Straight through Intersection—Collision with approaching vehicle turning left in front of our driver.

c. Starting through Intersection when Light Changes—Collision with other vehicle or pedestrian.

d. Right or Left Turns—Collision with parallel or cross traffic even when other vehicle illegally passes at intersection.

e. Right Turn—Collision with vehicle apparently parked at curb but driver is in seat and vehicle moves forward as our driver makes a right turn. Reverse situation likewise is preventable.

f. Intersection Accidents with Pedestrians.

g. Other Vehicle Skidding into Our Vehicle.

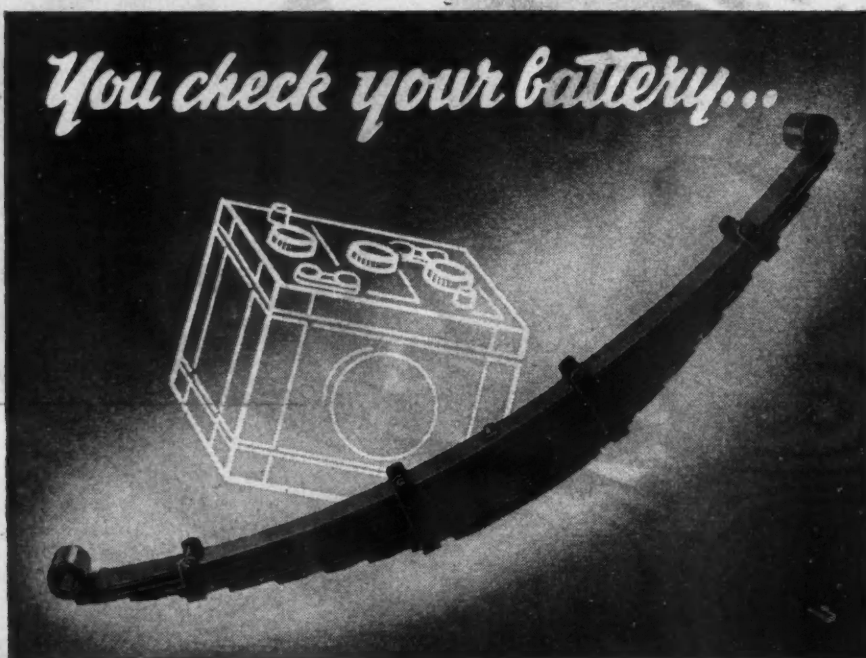
5. *Accidents Blamed on Brakes.*

a. Worn or Unequalized Brakes.

b. Truck or Car Parked—Rolls Away.

c. Truck Rolls Away Due to Air Leaks—Vacuum failure or driver set trailer brakes only. The burden of responsibility is placed on the driver to operate within the limits of the mechanical condition of his equipment. The driver has the responsibility of refusing to take out a vehicle he knows to be in unsafe condition and the responsibility of refusing to

(TURN TO PAGE 100, PLEASE)



... but who checks your SPRINGS?

The services of experienced spring men are vital today to fleet operators who must overload aging vehicles to meet wartime transportation requirements. Such specialized service is available from nearly a thousand Rowland distributors—in hundreds of cities. These men know springs—how to make them deliver a full lifetime of service, what to look for that might cause premature failure and how to prevent it. They offer a wealth of practical experience gained over the years in servicing thousands of trucks and buses. There's a Rowland distributor near you—call on him for periodic spring inspection and service, as well as replacement SPRINGS, mufflers, wheel suspension parts and universal joints.

Call nearest Rowland Distributor. He's supplied by these branches:

ATLANTA 3, Ga., William and Harvey Rowland, Inc., 449 Marietta St., N. W.
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WM. and HARVEY ROWLAND INC.
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150th ANNIVERSARY OF AMERICA'S OLDEST LEAF SPRING MANUFACTURER

THE Thompson "Know How" MANUAL

FREE

To Customers of
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Jobbers

These "Sample
Pages" Show How
Illustrations,
Diagrams and
Simple Text
Make Scores of
Jobs Easier to
Understand...
Easier To Do

FOR THE Wartime AUTO

NOTE:

This book is a temporary replacement for the famous Annual T. P. Repair and Tune-Up Manual which will again be available after the war when regular production of car models and engines is resumed. GET A FREE COPY OF THE KNOW-HOW MANUAL FOR YOUR SHOP NOW.

New "KNOW-HOW" Manual

can help every Auto Mechanic do BETTER WORK—EASIER—FASTER

PERHAPS we really should call this book a "Show-How" Manual. That's what this 300-page book does.

In simple language and with profuse illustrations and diagrams, it shows how to do over 800 operations—basic jobs in repair and maintenance of engine and chassis.

Each section in the book, covering engine, transmission, carburetor, pumps,

steering, brakes, chassis, etc., is complete, showing not only how to take out and replace units, but how to take them apart and put them together again on the bench.

This manual is offered free through T. P. Jobbers, as timely, practical help to the thousands of new recruits—men and women—now in automotive service. Seasoned mechanics, too, find plenty in this book to make jobs easier and their work better.

Get it From Your Thompson  Products Jobber

WAS THAT ACCIDENT REALLY UNAVOIDABLE?

(CONTINUED FROM PAGE 98)

continue to drive if he finds that a vehicle is unsafe after having it on the road.

6. *Accidents with Passing Trolleys*—Drivers have a responsibility when overtaking and passing, to do so safely.

7. *Weaving Right or Left*—Failure to keep in line in multiple lane traffic.

Contact often takes place near rear of truck on one side or the other as vehicle swings from lane to lane. May look unavoidable, as though car tried to pass through a space too narrow, but this space is made too narrow for car by weaving truck.

8. *Squeeze Plays—Shut Outs*—Usually due to leading driver cutting over just as driver behind speeds up to pass. Leading driver forces other into obstruction in center of street, such as bridge girder, pillar or lamp post, or squeezes other into parked

car or oncoming traffic, etc. Drivers should not get into a position where they may be forced into a column or post, nor should they swerve at such time as to force others into trouble.

9. *Starting from the Curb—Entering the Flow of Traffic*—It is the responsibility of the driver leaving the curb or entering the flow of traffic to do so safely and without being involved in an accident.

10. *Driver Struck by Vehicle Leaving Curb*—Vehicles about to leave curb have a driver back of wheel and front wheels turned toward street. Most accidents can be avoided. The attitude expressed in this ruling may seem quite severe. On the other hand it is becoming more and more evident that a driver proceeding along a street can do much about avoiding contact with someone who pulls from the curb, and that in the great majority of cases, if he is really on the alert and looking for such a possibility, he can entirely avoid a collision of this kind.

11. *Entering Traffic from Driveway, Alley or Side Street.*

a. Entering traffic safely from a private driveway, alley or side street is the driver's responsibility.

b. Other driver enters main road from driveway, alley or side street. In general, such accidents are avoidable.

12. *Skidding Accidents—Wet Streets, Snow, Ice, Sleet.*

13. *Poor Visibility—Day or Night, Fog, etc.*—The burden of responsibility is placed on the driver to operate within the limits of his ability to see and control his vehicle.

a. Darkness, Fog, etc.—Weather conditions of fog, heavy snow, etc., increase the hazards of driving but must be met.

b. Blinded by Glare—Does not relieve the driver of responsibility to operate safely.

c. Dimouts—Do not relieve the driver of responsibility to operate safely.

14. *Pedestrian Accidents*—Pedestrian accidents are always serious and can easily be fatal. When you consider that more than one-third of all motor vehicle fatalities involve pedestrians, it surely becomes necessary to dig into each one thoroughly before pronouncing it unavoidable.

From an award viewpoint, pedestrian accidents are extremely difficult

(TURN TO PAGE 102, PLEASE)

EBERHARD

"slam" LOCKS

SAVE MILLIONS OF DELIVERY MINUTES!!








No. 5606 No. 5609 No. 565693 No. 565699 No. 4877 No. 4878

Just "slam the door and it locks!"

With Eberhard "slam" locks the folding handles for compartment doors of tank and utility bodies. All locks latch when doors are "slammed". Nos. 5606 and 5609-565693-4877 and 4878—"SLAM-TITE" also pull doors tightly against jambs. Nos. 5606-4877 and 4878 both "latch" and "lock" upon being slammed—offering protection to the loads. You can use these locks profitably. Write for complete information.

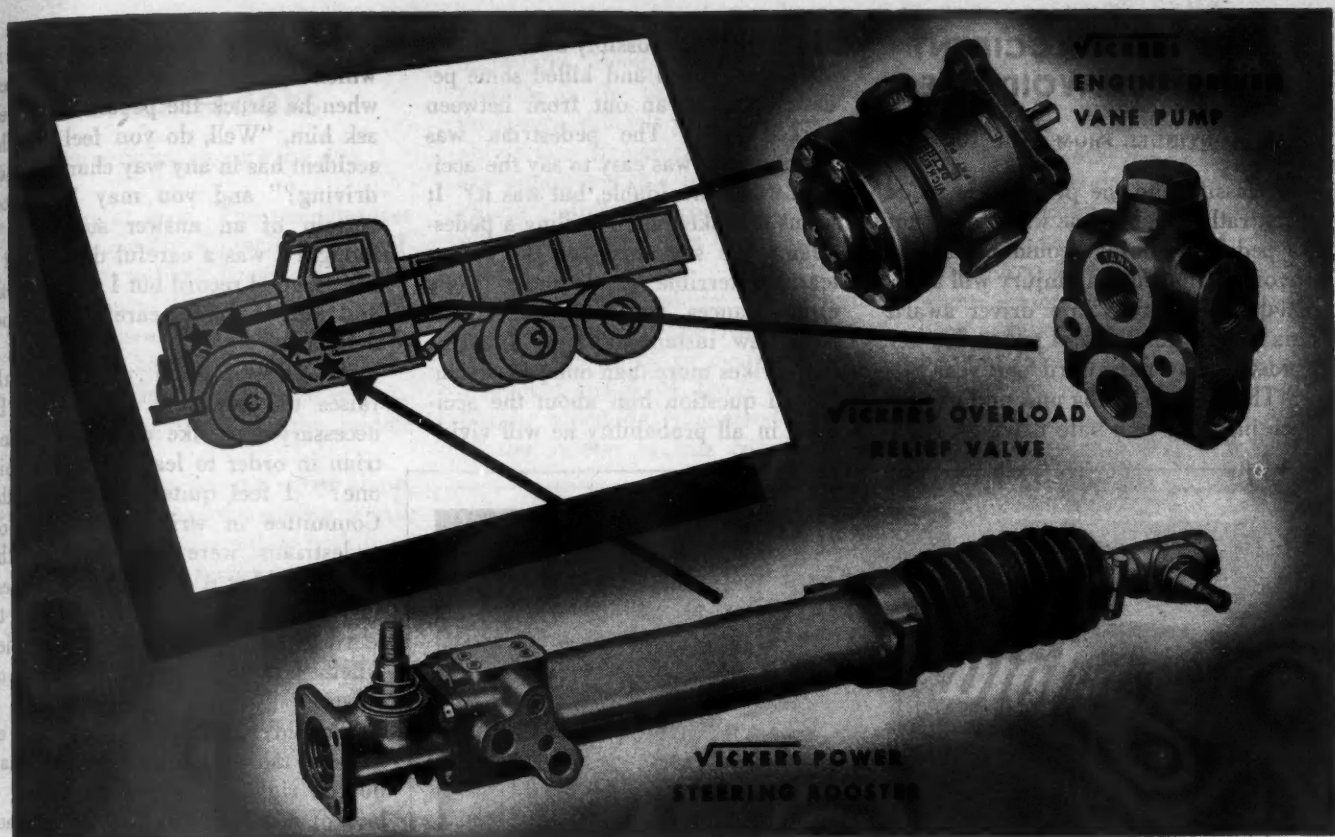


No. 5603
A single point
"RECESSO"
slam lock.

EBERHARD

MANUFACTURING CO.

DIVISION OF
EASTERN MALLEABLE IRON CO.
CLEVELAND, OHIO



EASY INSTALLATION . . . Another

Being compact and requiring a minimum of space for installation, the Vickers Hydraulic Power Steering System can be applied to most existing hand steering mechanisms with a few simple alterations. The separate and compact power cylinder (booster) can be located where it does not interfere with other apparatus and where the power will be applied directly to (and in line with) the drag link. No additional space is required at the end of the steering column where space is usually at a premium.

Other important advantages of Vickers Hydraulic Power Steering are: effortless, positive and shockless steering, automatic overload protection, reduced operator fatigue, greater road safety, automatic lubrication, and 14 years of operating experience. Bulletin 44-30 gives complete information about Vickers Hydraulic Power Steering; write for a copy.

VICKERS Incorporated

1418 OAKMAN BLVD. • DETROIT 32, MICHIGAN

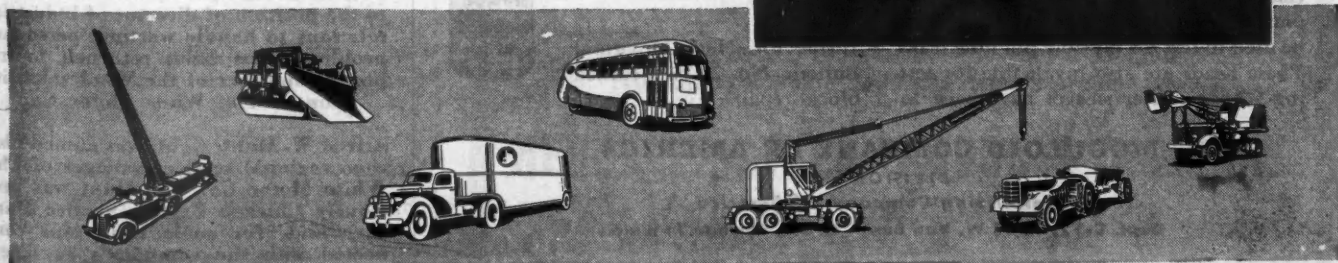
Application Engineering Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT
LOS ANGELES • NEWARK • PHILADELPHIA • ROCHESTER • ROCKFORD
TULSA • WORCESTER

Feature of

VICKERS HYDRAULIC POWER STEERING

Representative Applications of

VICKERS HYDRAULIC POWER STEERING



WAS THAT ACCIDENT REALLY UNAVOIDABLE?

(CONTINUED FROM PAGE 100)

to classify and the proposal is made that rather than argue whether or not a pedestrian injury could have been avoided, that such an injury will automatically delay a safe driver award six months and a fatal pedestrian accident delay the award one year.

There is something unsound in presenting a 10-year safe driving award

to a driver who possibly a week previously struck down and killed some pedestrian who ran out from between parked cars. The pedestrian was wrong and it was easy to say the accident was unavoidable, but was it? It seems to make light of killing a pedestrian. We say this, for the driver learns a terrible lesson under tragic circumstances, and there are apparently few instances where a driver ever strikes more than one pedestrian. If you question him about the accident, in all probability he will vivid-

ly explain the impossible situation in which he suddenly found himself when he struck the pedestrian. Then ask him, "Well, do you feel that the accident has in any way changed your driving?" and you may be almost certain of an answer such as, "I thought I was a careful driver and I have a good record but I realize I can and must be more careful about pedestrians."

An answer such as this fairly raises the question: "Should it be necessary to strike or kill a pedestrian in order to learn how to avoid one?" I feel quite certain that the Committee in writing the rule on pedestrians were governed by the sentiment that it should not be necessary to strike a pedestrian in order to learn to avoid them and this applies whether the pedestrian is drunk or sober.

I could repeat case after case of drivers taking chances rather than do the right thing—of displaying a lack of responsibility by the very act of taking these chances, and it seems to me that this whole program of safe operation centers around developing a sense of responsibility to operate without accident. From it springs not only the desire to learn to drive better, and to appreciate that just because you have driven 10 years is no indication that you are without driving faults. I know of nothing more important than that supervisors work with their drivers to develop this sense of responsibility to operate without accident.

END

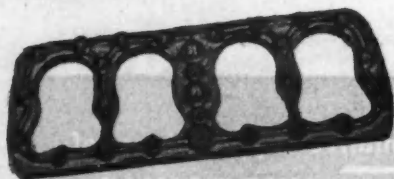
(Please resume your reading on P. 56)



A Shop-Proven Process For the Positive Repair Of Cracked Motor Blocks

HERE'S THE EQUIPMENT YOU NEED

There is absolutely no guesswork in motor block repair with this time-saving, proven, new Moguloid process which basically employs the Mogul Electric Bonder—an air-cooled unit for electric bonding the crack. It is fast and easy to use. Nickel rod is used for cast iron blocks and aluminum rod for aluminum heads and blocks.



MOGULOID TEST HEAD — With the electric bonding technique or any mechanical method of block repair it is recommended that a Moguloid Test Head be used to test for possible pin hole leaks. These heads are also invaluable for testing seepage, after sleeves have been in-

stalled or when water is found in the oil reservoir. No shop should be without these fool-proof, time-saving test heads. Available for all makes and models of auto, bus and truck. Moguloid Test Heads are lightweight, cast aluminum and equipped with pressure gauge and air connector.

MOGULOID SOLUTION—Here is a pure colloidal that is excellent for sealing a leak in the block, stop a leak in the radiator, head or water pump. Shops doing mechanical block repair will find Moguloid the solution for closing pinhole leaks in the repair. Every bus and truck should carry a bottle for emergency repairs on the road.

Write for New Moguloid Bulletin No. 22 on Cracked block repair.



Lon A. Fleener, left, who was moved to the position of director of industrial relations to handle wartime personnel problems, has been returned to his post as manager of the Wholesale Division of The White Motor Co.

Alfred W. Hunt, right, was named Chicago regional service manager of The White Motor Co. Mr. Hunt was previously Chicago Branch Service Manager and, for some time, was connected with the company's engineering laboratory at Cleveland.

MOGULOID COMPANY OF AMERICA

DIVISION OF

Metallizing Company Of America

Dept. C-12, 1803 W. Van Buren Street, Chicago 7, Illinois

HEAT-RADIATING SHOP FLOORS

(CONTINUED FROM PAGE 69)

peratures at zero. The temperatures are more readily appreciated by realizing that radiant heated structures do not require the high room temperatures necessary for comfort in conventionally heated buildings. Usual temperature maintained even in radiant heated homes is in the middle 60s.

Until radiant heating came along, there was no way of assuring warm, dry floors in basementless buildings. Radiant heating systems concentrate warmth where it is needed—at floor level—instead of piling it up at the ceiling. And in few other types of structures are warm floors so necessary as in garages to provide for the comfort, health and efficiency of employees.

By being completely concealed, radiant heating occupies no floor or wall space, which can be used for other purposes. For the same reason, the system does not affect the location of partition walls or any later changes in such walls.

The temperature of a radiant heated building promptly returns to normal after the doors have been opened to admit or discharge a car. The adoption of this heating system in airplant hangars stemmed from this specific characteristic. In a test in Colorado, it required only six and one-half minutes for the radiant heated hangar to regain normal temperature after the doors were closed. On the day the test was made, the outside temperature was below freezing and the doors—virtually one entire side of the structure—had remained open for more than 10 minutes, allowing the temperature to drop 22 deg. F.

Air currents in a radiant heated structure are reduced to a minimum—particularly along the floor. This is considered to be an important health achievement, not only because the garage workman may spend a considerable portion of his time working close to the floor but, also, because dust or dirt particles, to which disease-producing organisms may attach themselves, can settle out, thus producing a purer and more sanitary air within the building.

Radiant heating permits use of large window areas to admit maxi-

mum light. Such windows have been possible in the past, but they made the room difficult to keep comfortably warm in winter. Radiant heating eliminates this problem by providing a draft-free room which does not set up cold drafts in the window zones.

The cost of installing radiant heating and operating the system cannot be pinned own to an overall general statement, but A. M. Byers Co., Pittsburgh, which has pioneered the use of the system in this country, has

compiled service records on several hundred installations that have been operated for from one to six complete heating seasons.

Accumulated data suggests that the cost of installing radiant heating is about the same as for any conventional wet type system. In towns where a number of the systems have been installed, technical workers have become familiar with pipe bending and welding procedures. Consequently, radiant heating has achieved some

(TURN TO PAGE 107, PLEASE)



**"I'M SURE GLAD
I PICKED
HERCULES!"**

"My fleet of Hercules Dumps has had a real workout the past few years, but every job has come through with colors flying.

It's really surprising how seldom Hercules bodies need service or repairs, and when they do, my Hercules distributor is right on the job.

My drivers like Hercules Hydraulic Hoists because of their ample reserve power, their dependability, and their "button-ease" dash controls, with no levers in the cab.

That Hercules slogan, "Men like to say they use them", certainly applies to me!"

Write us, or see the nearest Hercules Distributor regarding the Dump Bodies or Hoists you need now.

**HERCULES STEEL PRODUCTS COMPANY
GALION, OHIO**

Soft pressure does it



Soft pressure piston rings and longer engine life go hand-in-hand. You can handle a badly tapered job with soft pressure Hastings Steel-Vents—or install them, with equal confidence, in rebored or re-sleeved jobs.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN

Hastings Mfg. of Canada, Ltd., Toronto

★ IT'S A PRIVILEGE TO BUY WAR BONDS ★

Soft Pressure Does it—In Reborees Too

An ice and fuel company says this about Steel-Vents: "At one time we felt that Steel-Vents were for use only in re-ring jobs, but since we have used them in rebore jobs for the past three years we are convinced *Steel-Vent is the right ring to use on any job.* We are as much interested in less cylinder wear as we are in more miles between overhauls and we have found both in Steel-Vent rings."

**HASTINGS STEEL-VENT
PISTON RINGS**



TOUGH ON OIL-PUMPING GENTLE ON CYLINDER WALLS

U.S. PAT. 2,148,097

HEAT-RADIATING SHOP FLOORS

(CONTINUED FROM PAGE 105)

installation economy over conventional systems, particularly in basementless designs.

Operating economy, the records disclose, runs from 10 per cent up to 30 per cent in comparison with other systems, regardless of the fuel used—gas, oil or coal.

Wrought iron pipe is used in virtually all radiant heating systems for three reasons. First, its coefficient of expansion is almost identical with that of concrete, thus providing added insurance against cracks developing in the floor. Second, wrought iron has unexcelled heat transfer characteristics. And, finally, wrought iron's reputation for 7000 years has been built on its ability to resist corrosion, a major requirement in piping material that is to be completely concealed and should be expected to endure for the life of the property.

END

(Please resume your reading on P. 70)

Goodyear Sends Raw Materials To Belgian Tire Plant

A dramatic sidelight on the close ties and swiftly coordinated movements on the European front and in American factories was revealed with the capture of Belgium. An undamaged tire plant fell into the hands of the American forces. Tires and recaps for the offensive were vitally needed. Precious time would be saved by bringing the Belgian plant into production.

This word was flashed back from the front to Army Ordnance in Washington. Within six hours after production material needs were outlined to Goodyear executives in Akron, synthetic rubber, tire fabric, chemicals and solvents, carefully boxed and wrapped, were in trucks headed for Cleveland Airport, 30 miles away, where planes were waiting. The shipment was flown to the eastern seaboard, immediately transferred to army transport planes and flown directly to Belgium in a matter of hours.

Following normal procedure, shipments of this kind would require at least thirty days for confirmation, assembling and shipping.

White Motor Executives Discuss Post-War Plans

An important meeting of White Motor Co. field and home office executives was held at Cleveland, Nov. 13-16, with regional managers from all over the country in attendance. Number one purpose of the four-day session was to lay post-war plans, so that the company may take the reconversion step with as little disruption of operations as possible.

In addition to a discussion of new

truck models, the regional managers and home office executives spent considerable time on the all-important subject of service. White's "Personalized Service" plan will be carried over into the future to give peacetime truck users the same benefits of "tailored" service that were offered to wartime operators. The handling of parts and accessories, training of sales and service personnel, programming of sales and advertising effort, and other related problems were fully discussed.



HOLLAND

FULL FLOATING SEMI-AUTOMATIC FIFTH WHEEL

Built In
30"—33"—36"
Sizes

Rubber mounted

One-Man
Operation

Exclusive Lock
(—it grips both
neck and shoulder
of king pin)

The approved standard, engineered for the toughest kinds of use under all possible conditions. Serviced by factory that devotes itself to complete customer satisfaction—doing its part to keep the fleets rolling. Write for details.

ENGINEERED BY

HOLLAND HITCH COMPANY

HOLLAND, MICHIGAN, U. S. A.

Here's What's New in Hydraulic Units

TOWER LIFT with Low Initial Height

Here is the answer to a modern Tower lift—new simplified design, new engineering, new type construction and new low cost.

This new tower is a design achievement which permits improved body styling, has low initial height with extreme elevations. Tower is controlled from the lift platform which is operated by twin telescopic rams. These units can be adopted to meet your requirements—from the streamlined truck to the open back utility truck.

Patented

DUMP HOIST for ½, ¾ and 1 Ton Trucks

Here's a new, lightweight, high pressure hydraulic dump hoist which permits high speed dumping. Low mounting and low loading height, under 48". Two hydraulic rams offer utmost stability and enable operator to raise and lower dump while truck is in motion. No subframe . . . fewer "wear out" parts . . . ideal for hand loading. Designed for the lighter jobs, up to 2000 pounds payload.



Descriptive literature available. When writing please advise in which unit you are interested, Towers or Dump Hoists.



BIRD-WHITE COMPANY

DEPT. C3-1, 3119 WEST LAKE STREET, CHICAGO, ILLINOIS

CUMMINS ANNOUNCES NEW DIESEL ENGINES

(CONTINUED FROM PAGE 70)

maintenance, the easy accessibility of parts which is provided in the Model H, is also provided in the newer line.

Limited numbers of Series NH and NHS Cummins diesels have already been placed in service. Most of them have been installed in new 20- and 30-ton dump trucks manufactured by Euclid and Mack, which are working on the Iron Range and on various other open pit mining jobs both in this country and Canada. Although the performance data obtained thus far from these operations is limited, there is every indication that these engines are living up to all expectations. This is evident in the statement of one operator on the Iron Range who reports 33 round trips per eight-hour shift with trucks powered by the new NHS engine, as against 22 round trips per shift for trucks powered by the old Model H engines.

According to company officials, quantity production of Series NH and NHS Cummins diesels is anticipated by the middle of 1945, although these plans are subject to whatever changes may be decreed by developments in the war. They will be manufactured in a complete line of automotive, industrial and marine models, but for the first few months, at least, the production emphasis will be placed on automotive models and power units of various types which are urgently needed for high priority jobs.

In announcing the development of these new additions to the Cummins line, the company makes it clear that manufacture of all existing models will be continued. These include, in addition to the H and HS, a third high speed diesel, the 100 hp., six-cylinder Model A, which also is designed for automotive, industrial and marine service. This also means a continuation of the Model L, a 250-hp., medium speed engine.

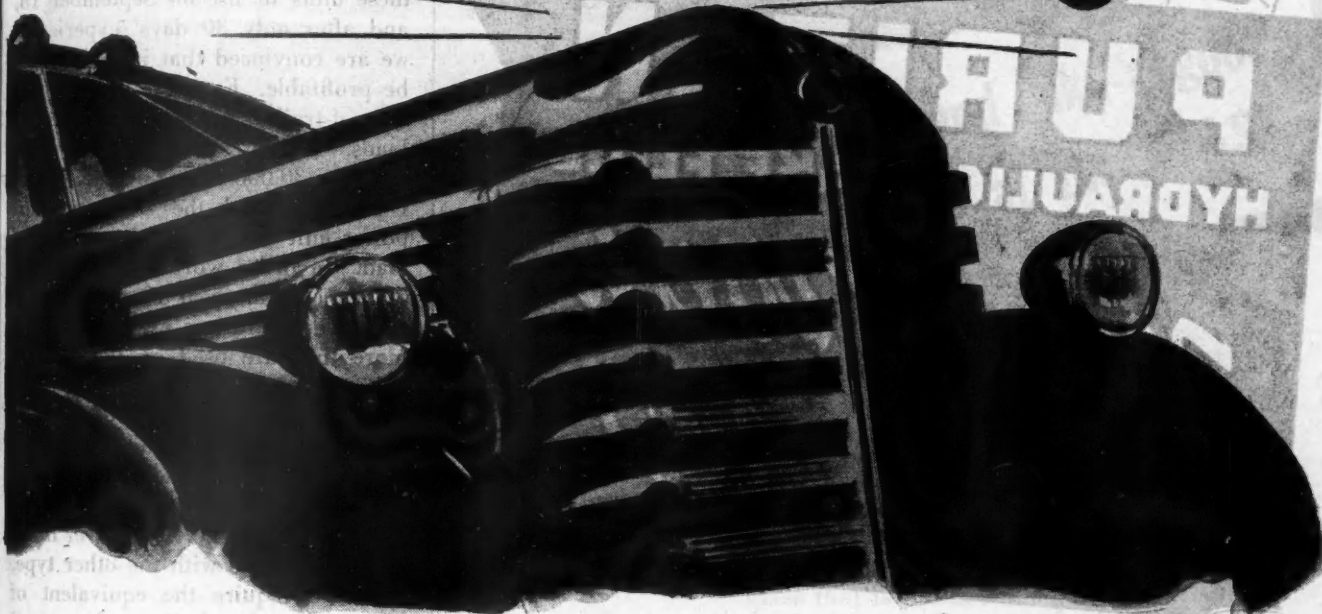
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(Please resume your reading on P. 72)

Van der Horst Receives "E"

The employees of the Van der Horst Corp. were awarded the Army-Navy "E" at appropriate exercises in Cleveland, Nov. 21.

**"...going to put an
Aluminum Engine
under that hood"**



"There's no sense in toting a lot of useless weight around. Looks like a logical spot for an aluminum engine," an opinion convincingly confirmed by tests on "aluminum engines" and aluminum engine parts by Alcoa's testing laboratory and outside manufacturers.

spent hundreds of hours on the test block, and is now slated for road testing. Alcoa Aluminum Alloys have proved to be an excellent means of cutting over-all weight, improving engine performance and efficiency.

No idle dream, this aluminum engine. It has

ALUMINUM COMPANY OF AMERICA, 2139 Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM



HOME-MADE STAND JUMPS ENGINE LIFE

(CONTINUED FROM PAGE 39)

major overhauls, but now, due to the labor shortage, we are unable to do much minor repairing. We wait until there is the actual need as shown by oil leaks, decreasing power or higher gasoline consumption. Formerly, we could fix these lesser adjustments before trouble developed. However this

testing method has been so successful and is such an improvement over the old way of road-testing rebuilt engines, that it will certainly be carried on through the postwar days.

The same practice respective to transmissions, rear ends and clutch assemblies has helped us go along without holding units in the repair shop awaiting parts. We carry extra assemblies ready to install, so they can be put in during the day by our shop mechanics. We also have been able to stock pumps, carburetors and

other small parts to keep the trucks on a revenue producing basis.

Advocates One Grade of Oil

We use oil filters on all of our trucks and tractors, and adhere to one grade of crankcase oil. These factors have done much to keep engines running better and to lengthen time between major jobs. Each driver carries one gallon of oil along. When it is necessary to add oil on the route, he can do it without changing to a different type or brand.

Prefers Heavier Trailers

As a profitable revenue is the incentive of truck operation, we have looked into tandem axle semi-trailers, not only for postwar operations, but for immediate needs. We put one of these units in use on September 15, and after only 30 days' experience, we are convinced that it is going to be profitable. For example, our old type of trailers were limited to 10-ton loads. The present tandem type is carrying 30,000 lb., or 15-ton, loads. One driver and the same type of power unit is pulling this extra payload. In order words, it is hauling 50 per cent more at 10 per cent increase in operating expense. While more tires are used on the tandem axle type, the additional cost is more than made up because of the 50 per cent higher daily payload.

There is one more advantage which is important to us in the present manpower shortage. One driver hauls 30,000 lb. while with the other type, it would require the equivalent of one man and a half on the round trip. As we see this part of the picture now, better equipment, or equipment better suited to higher payloads, will help us to keep on the profitable side of the ledger in the days that are ahead.

END

(Please resume your reading on P. 40)



The Super-Service Motor Freight Co. lives up to its name by averaging 17,458 truck-miles per day. This Mack EHT tractor hauling a bond boosting trailer has traveled more than 450,000 miles and is one of 23 Mack EHT models that have equalled or - bettered this mark



PURITAN COMPANY, INC.
ROCHESTER 6, NEW YORK

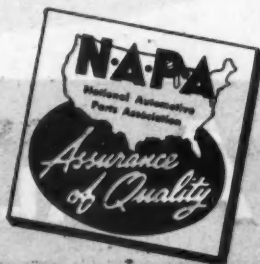
You can service the hydraulic brakes of any car, bus or truck *quicker and easier* with Puritan Hydraulic Brake Fluid. You don't have the bother checking what brand of fluid was used previously, because Puritan *mixes with any or all of them*.

Puritan is the all-purpose Hydraulic Brake Fluid developed on a Research Fellowship at the Mellon Institute of Industrial Research.

It's made from a patented *all miscible*, non-gumming base. Easier on rubber than any other fluid on the market. Meets the severest requirements of viscosity, pour point, action on metals, etc. Saves on maintenance; lessens service layups.

Standardize on Puritan Hydraulic Brake Fluid. Regular grade for ordinary passenger car service. Super grade—aircraft quality for trucks and busses and heavy duty service.

*Now Back
in quantity
production!*



Put yourself in the
DRIVER'S SEAT....

...and take a good
look at the GLASS

Is it free from cracks and discoloration?
Entirely free? Remember that even the tiniest imperfection can become annoying and cause eye fatigue—for your driver must watch the road hour after hour through the glass.

Providing glass that is free from cracks, discoloration and distortions is an important step in prevention of accidents—a step to protect your drivers, passengers, freight and equipment.

Cracked or discolored glass marks your equipment as down-at-the-heels, and thus endangers good will you may have spent

years in creating. Fortunately glass is plentiful enough to take care of your needs.

Check your fleet today for glass that needs replacement. Install L-O-F Clear Vision Hi-Test Safety Plate Glass—the glass that is ground and polished for maximum freedom from distortion. If you do your own replacement work, your L-O-F Distributor will keep you stocked in the more frequently needed sizes and shapes. If you send your glazing work out, choose a shop that uses genuine L-O-F Hi-Test Safety Plate Glass. Libbey-Owens-Ford Glass Co., 46154 Nicholas Building, Toledo 3, Ohio.



LIBBEY • OWENS • FORD
a Great Name in **GLASS**

NEW PRODUCTS

(CONTINUED FROM PAGE 61)

announced an improved line of lubricants processed with Bonoleum.

Bonoleum is an ingredient blended with all types of bonded oils and said to have a high film strengthening agent, and to be impervious to chemicals, heat or acid. It is compounded with castor-oil essence from which the gum-forming ingredients have been removed by secret processes.

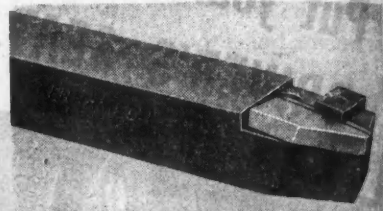
Other claims made for Bonoleum are that it eliminates surface tension and assures a transparent, free-flowing lubricant.

Use Free Postcard For More Details.

P317. New Cutting Tips

Kennametal Ind., Latrobe, Pa., is now producing a line of "H.D." tools having clamped-in and advanceable tips for heavy duty machining of steel castings, forgings, bar stock and cast iron. The design has been made

possible by the development of heavy duty Kennametal tips that, while overhanging the tool shank by about 1/16 in., have ample strength to take



heavy feeds and depths of cut. When the tips become dull, they can be advanced and resharpened.

Heavy duty Kennametal tips are available in grades KM and K3H for general steel-cutting, grade K2S for machining steel castings where steel is encountered, and grade K6 for cast irons.

Use Free Postcard For More Details.

P318. 1/4-Ton Electric Hoist

The American Engineering Co., Philadelphia, makers of AE Lo-Hed Hoists, announces its new 1/4-ton electric hoist. The 3/4-hp. heavy duty motor is of the hoist and crane type

with high starting torque. Gearing is heavy duty, spur type. The lowering brake is automatic Weston screw-and-disc, and the electric brake, built integral with the motor, has full load torque capacity.



The bolt-suspension type hoist weighs 195 lb. The plain shock-proof trolley model weighs 225 lb.

Use Free Postcard For More Details.

P319. Speed Nut Cover Plate

Here is a new speed nut cover plate, designed by Tinnerman Products, Inc., Cleveland. Originally used for patching bullet holes in airplanes, its automotive applications now include use for inspection door, covers, or for sealing up holes left after alterations or removal of equipment.



They are easily and quickly at-
(TURN TO PAGE 114, PLEASE)

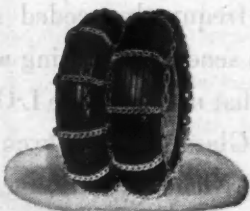
WE SALUTE THE NATION'S MOTOR FREIGHTERS

★ **NIGHT AND DAY**...seven days a week...in fair weather and foul...thru lighted metropolitan streets...bleak mountain and forest-bordered roads...back and forth over the Nation's Highways goes the never ending battle to transport millions of tons of vital war supplies and foodstuffs for the overseas and home fronts. The operators and drivers of the Nation's trucking fleets are rendering service none of us could get along without.

What a herculean task these men are performing will never be fully appreciated until it is understood what it takes in brains and brawn to keep irreplaceable, war-tired motive equipment in constant service—maintaining supply schedules to hungry production lines—filling cargo hulls destined for the world's ports.

Theirs will be a well-earned rest when complete peace settles over the world and normal working hours permit them the relaxation and enjoyment of home and family.

Theirs will be a new pleasure and appreciation of the God-given privilege of work when peacetime factories put into their hands easier-handling, more comfortable transports, fully equipped with all the dependable accessories that contribute to "on-time" schedules and safer trips.



COLUMBUS-McKINNON CHAIN CORP.

MANUFACTURERS OF

CLAW & DREADNAUGHT TIRE CHAINS

GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.
Plants at Angola, N. Y., St. Catharines, Ont., Can. and Vereeniging, So. Africa

Enlargements of this salute, 17" x 22" in size, suitable for your wall or bulletin boards will be sent you free, on request.



Comparing yesterday's transportation with today's is an eye-opener. ★ In this march of progress Raybestos has kept ahead, by producing the most complete line of brake linings and clutch facings in America; by providing friction materials that are exactly right—because specially engineered—for every make, model and job, and by winning universal acceptance based squarely upon customer satisfaction. ★ Tomorrow, out of Raybestos' war production, will come still better Raybestos products, to make it still more worthwhile for you to "specify Raybestos".

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., BRIDGEPORT, CONN.



Raybestos

AMERICA'S BIGGEST SELLING

INVEST IN AMERICA
BUY BONDS

BRAKE LINING



BRAKE LININGS, CLUTCH FACINGS, FAN BELTS, HOSE FOR CARS TRUCKS, BUSES, TRACTORS ON THE WAR AND CIVILIAN FRONTS

NEW PRODUCTS

(CONTINUED FROM PAGE 112)

tached by sliding one end of the speed nut into the hole, centering the cover plate over the hole, and tightening the screw. They are made of SAE 1060 steel, heat treated, Parkerized and coated with zinc chromate. Three sizes are available, 29/32, 1 1/8, and 1 3/8.

Use Free Postcard For More Details.

P320. Shock Absorber Tool

A new tool designed to stop the leak of shock absorber fluid caused by loose or worn packing on 1939 to 1942 Chevrolet cars inclusive, without removing the shocks from the car, has been announced by the Cal-Van Machine Products, Inc., Jackson, Mich.

The tool clamps around the pressed metal packing cap between the shock absorber body and the arm. Inside the tool is a hardened steel ball

which is tightened, then rolled around the packing cap, causing the neoprene packing inside the cap to hug closer to the shaft, stopping the leak.

Use Free Postcard for More Details.

P321. New Swaged Hook

A new direct-line swaged hook is announced by Poulsen & Nardon, Inc., Los Angeles manufacturers of stamped parts and fittings. This hook can be swaged to the cable. It is claimed that this new method of fastening is faster and safer than former methods, and eliminates costly splicing and the rough, dangerous edges that splicing so often leaves.

Besides its swaging feature, other advantages are claimed for the new hook, such as smooth inside surface, round throat, ample radius, and finished point.

The hook illustrated takes 1/4-in. cable. Other sizes are available for 3/16 to 1-in. cable.

Use Free Postcard For More Details.

END

(Please resume your reading on P. 62)



PRECISION

MEANS MUCH IN ENGINE MAINTENANCE TODAY

Perhaps the most essential tool in engine maintenance today is your lathe. As the availability of replacement parts becomes more and more difficult—as the shortage of materials continues—the exacting precision of a South Bend Lathe becomes a real vital asset.

Countless precision operations of the most exacting nature are necessary on maintenance jobs. Where old parts must be reworked—where welded parts must be re-machined—even in the fashioning of new parts from scrap material—a South Bend Lathe proves its versatility. It's an important tool in helping to keep war-time transportation running.

Hundreds of other reconditioning jobs such as machining pistons, boring connecting rods and making bushings are handled on a South Bend Lathe. Write now for our new Catalog No. 100-D stating size and type of lathe in which you are interested.



HOW TO RUN A LATHE

Send for this 128-page handbook on the operation and the care of metal working lathes. Contains 365 illustrations. Written in simple non-technical style, easy to understand. Sent postpaid for 25c in coin or stamps.



Lathe Builders For 38 Years



SOUTH BEND LATHE WORKS

445 EAST MADISON STREET • SOUTH BEND 22, INDIANA

New Army Film Shows Importance of Tires in Winning War

The War Department has just produced a moving picture that portrays a new "hero" in the war—the rubber tire. It's called "Highballing to Victory."

The film has been made from actual combat footage and shows how the rubber-tired "Red Ball Express" of American trucks rolled up the enemy in Normandy. It shows the China version of the "Red Ball Express" churning through hub-high mud as the Ledo Road is built toward Tokyo. And it shows how the "feet" of American planes scuff their rubber-tired "shoes" as they land at terrific speeds.

This film is the latest in a series of special moving pictures produced by the War Department's Motion Picture Branch of the Industrial Services Division, 1501 Broadway, New York City. It has a running time of about 20 minutes and is available in either 35 or 16 mm. size.

THE ITALIAN FRONT—
PROVING GROUND



James Campbell

**"Judging by his 'line'—
he must have been a Weatherhead Salesman!"**

THE WEATHERHEAD "LINE" · FITTINGS · FUEL LINES · DRAIN COCKS · DASH CONTROLS · BRAKE PARTS

THE ITALIAN FRONT— PROVING GROUND

(CONTINUED FROM PAGE 57)

—acres of 5-gal. cans which constitute filling stations of 100,000 gal. capacity, operated by over 1000 attendants, or dump men. When the front advances rapidly these dumps last only a week. As they are moved up and stocked, 750 and 2000-gal. truck tankers sometimes make 125-mile round trips day and night until

the vital gasoline pipe lines come up.

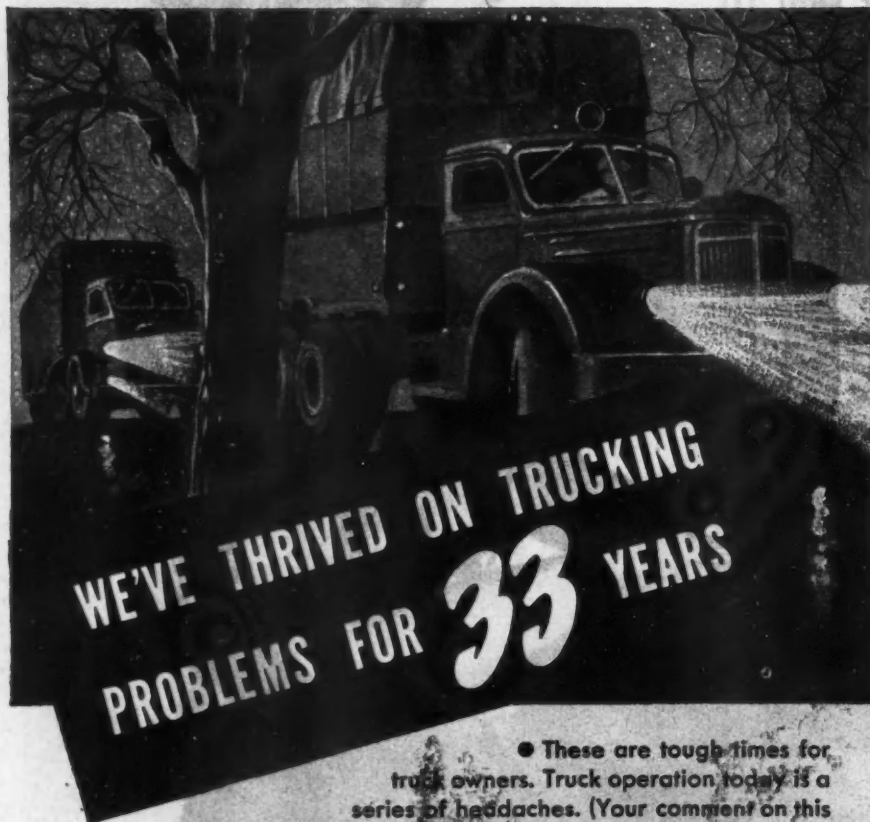
These rear area battles for gasoline and ammunition and the hundreds of other commodities which a field army uses daily have assumed such size and importance that military men, long fond of reducing the art of warfare to the homely old rule, "Git there fustest with the mostest men" now call this war a "conflict of logistics." Rome would fall to the side that got there not only with the most men, but the most 2½-ton trucks and the most wire and C rations.

One third of the officers and men in the Fifth Army have been continually engaged in this "conflict of logistics"—feeding and clothing and supplying our troops faster and better than the enemy can supply his. It is the private campaign of G-4, one of the four general staff sections of an army, and its supply services, notably quartermaster and ordnance. Fifth Army G-4 is Brig. Gen. Ralph H. Tate of Owosso, Mich., the one man responsible to General Clark for supplying the Fifth Army. He and the members of his staff plan their supply strategy as carefully as a field commander works out an attack. The Italian campaign marks the first instance in which G-4 has actively operated supply procedures. Throughout the drive up Italy, G-4 and its supply units have been "deluged" with military observers from the war department who have taken notes to pass on to other armies preparing for major supply battles of their own.

For his battle, General Tate has his own army: tens of thousands of supply men—Yanks, British, Brazilians, Poles, South Africans and Indians, whole units of bakers and truck drivers, tank repairmen and mule skinner—all of the unsung Joes who fight in the lines in the "conflict of logistics." It is unfortunate that the phrase "unsung heroes" has been used so generally that it has lost significance. In the strictest sense of the words, General Tate's troops are often heroes, invariably unsung.

Who, for example, has heard of Private Glen J. Funk of Stoneburg, Tex., or Private Adrian Menges of Ft. Scott, Kan.? Last May they were helping operate an "ammo" dump on a muddy hillside before the Gustav Line, when the 85th Infantry Division sent back an emergency call for ammunition. In the next 24-hours they and their little company of 85 men, including every cook and clerk, handled—received or distributed—exactly 4430 tons of ammunition. They worked without relief, loading a continuous line of trucks all night in total blackout. There were really 86 men, for their commander, 1st Lieut. George S. McDermitt of Nolan, Okla., heaved "ammo" with his men. The 85th went on to help break the Gustav Line behind a record breaking artillery barrage. The other members of

(TURN TO PAGE 118, PLEASE)



**Delays
Idle Time
Driver Morale
Overtime Problems
Speeding, Accidents
Insurance Reduction**

● These are tough times for truck owners. Truck operation today is a series of headaches. (Your comment on this is probably—"Are you telling us?")

Maybe we can help you. For a third of a century, helping solve trucking problems has been our "meat." In fact, we have gotten out a booklet just on that subject. It's called—"Ten Ways of Getting More Work Out of Motor Trucks." It gets right down to brass tacks on the problems listed at the left, and many others, such as better routing, reducing loading time, etc. It shows how the **SERVIS RECORDER** is the best friend of both boss and driver!

This helpful booklet is yours for the asking. And no obligation, either. Write us. **THE SERVICE RECORDER COMPANY, 1375 Euclid Avenue, Cleveland 15, Ohio.**



The Servis Recorder
Tells Every Move Your Truck Makes



A load on a Highway. a load off your mind

Associated Transport is one of many contract carriers who know Highway Trailers handle emergency war shipments swiftly, efficiently, dependably. When red flags up front indicate rush war orders, owners and drivers appreciate the extra capacity and easy maneuverability of Highway Trailers.

New Highway commercial trailers include many features resulting from Highway's wartime experience. These points are detailed in two new illustrated booklets which show the reasons for Highway's lower ton-mile cost.

Write for your copies of these booklets today. Prepare now for the keener competition to come. Let your next trailers be Highways.

ON EVERY
U. S. HIGHWAY



HIGHWAY TRAILER COMPANY

Factory and General Offices,
Edgerton, Wisconsin

*Truck Trailers and Bodies • Earth
Boring Machines • Winches and
other Public Utility Equipment*

HIGHWAY AMERICA'S
QUALITY **TRAILERS**

THE ITALIAN FRONT— PROVING GROUND

(CONTINUED FROM PAGE 116)

that fanatical little gang of dump workers are still unknown. They are just GIs in General Tate's army.

It takes about 3000 GIs to operate the Fifth Army's "ammo" dumps. When Army moves, new sites must be opened up in forward fields and pastures, frequently within range of enemy guns, cleared of mines, and

several thousand tons of bullets and shells brought up from abandoned rear dumps. Last summer in one month they opened up 16 such dumps which were strung out along Italian highways for nearly 200 miles.

When the Fifth was driving 15 and 20 miles a day last June, ordnance men had to devise new methods. In one corps a "rolling reserve" was set up. This was literally an ammunition dump on wheels. One hundred trucks, each loaded with four tons of ammunition of all types, moved with

the frontline troops. Every few miles it stopped and radioed its location to forward supply men, who drove back on schedule to draw their precious "ammo" by "tailgate loading" directly from the trucks of the convoy. This system, entirely new in the Mediterranean Theater, was used for three critical weeks in the push north from Rome.

Gasoline and ammunition account for over two-thirds of an army's supply tonnage. The other commodity of the "big three" which have priority over all other supplies, is food. Daily rations are delivered to Fifth Army soldiers by an extraordinary organization known as "Sullivan's Grocery." This amazing chain store consists of over a thousand quartermaster troops who do nothing but handle several thousand tons of food every day. It is managed by the Fifth Army Quartermaster, Brig. Gen. Joseph P. Sullivan of San Francisco, Calif., and operated by his right hand groceryman, Lieut. Col. Francis A. Troy of Columbia, S. C. It is Colonel Troy's job to get three meals a day—with coffee and sugar!—to an army of hungry men the size of Kansas City, Mo.

The job is a tough one from the first operation at the docks of Italy's ports. There are 25 items in the standard army "B" ration. Each item comes from the states in bulk, which means that when ships arrive, all of the food must be unloaded and stacked before balanced rations can be issued. From the base warehouses it is then trucked down through the dump system, until every company supply sergeant has drawn his daily ration for his men. Included are numerous accessories, such as candy, tobacco and cigarettes, gum and soap, and, in season, fly swatters and insecticides.

"Sullivan's Grocery"

Every lesson and experiment in "Sullivan's Grocery" has been reported in detail to the War Department where they have been incorporated in whole or in part in new supply procedures for American troops in all theaters.

The toughest supply problem and one unique in military history was the Fifth Army's beachhead at Anzio. It was a creative job from D-day, since nearly every operation was

(TURN TO PAGE 120, PLEASE)

For 1945 ★ ★ ★ ★

Safe is the man who plans as he goes,
alert to road danger, his eyes never close.

At home and abroad there's more freight to speed,
supply lines to fill—our people to feed.

Far flung lie our fighters—our war plants as well,
demands are increasing, their efforts to swell.

Each truck and each man must mightily strive—
must do more with less to back up the drive.

To finish this war our efforts we plan,
safe driving will help—all waste we must ban.

Year in and year out—'twill ever be so,
safe thinking is best—let's plan as we go!

★ Keep 'em Rolling!

American Safety Tank Company

Kansas City, Missouri

NOW!



feather touch **STOPS**
BY

KELSEY-HAYES WHEEL CO.

The Kelsey-Hayes Wheel Company will manufacture Vacdraulic Brake Power Boosters and will sell to passenger car, truck, bus and other automotive manufacturers. The Empire Electric Brake Company will continue to market Vacdraulic through automotive distributing organizations.

VACDRAULIC

KELSEY - HAYES WHEEL CO., DETROIT, MICH.

Sold to Automotive Distributors by

EMPIRE ELECTRIC BRAKE CO., Newark 7, N. J.

VACDRAULIC is a Trade Mark of Empire Electric Brake Company



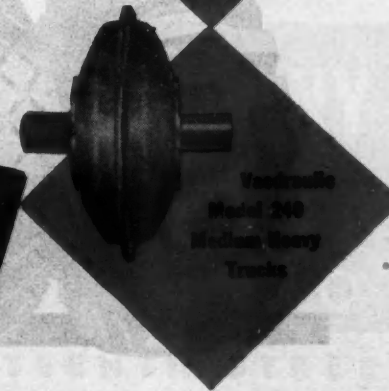
**Vacdraulic
Model 30
Passenger Cars
and Light Trucks**



**Vacdraulic
Model 180
Medium
Trucks**



**Vacdraulic
Model 310
Heavy Duty
Trucks**



**Vacdraulic
Model 240
Medium Heavy
Trucks**

**THE BRAKE
POWER
BOOSTER**

THE ITALIAN FRONT— PROVING GROUND

(CONTINUED FROM PAGE 118)

without precedent. Never before had all supply operations for nearly half of an army been carried out for any length of time—12 weeks—directly under enemy shellfire.

Of all the new ideas that worked at Anzio, the biggest was General Tate's "Naples Turnaround." This system made ferries out of the fleets of LSTs

plying constantly between Naples and the beachhead. Trucks were loaded at base dumps in southern Italy, driven onto LSTs at Naples, parked and chained in position. Arriving at Anzio, they drove off and straight out to the forward dumps, unloaded and came back through a truck pool to a returning LST convoy and back to Naples. Through this "turnaround" and the round-the-clock toil of supply men, the little resort harbor of Anzio was transformed into the 7th military discharge port in the world in six

weeks, topping London's volume.

All of these operations in the Fifth Army's "conflict of logistics" have combined since Salerno to move about two and a quarter million tons of ammunition, food, clothing and equipment from ports and base dumps forward through the vast population of the Army. Every pound of this mountain of supplies has been moved somewhere along the line by trucks, which brings into relief the key problem in all supply procedures—transportation, and its corollary problem—traffic.

A Traffic Problem

A modern army travels not only on its stomach but on its wheels. An infantry division has about 1800 vehicles; an armored division nearly 3000. Put thousands of rear area service trucks on the roads with them and you have a traffic density that may send 10,000 military vehicles up and down a highway past one point in 24 hours. Into this flow of traffic—several times greater than that on the Lincoln Highway in the States—the army may suddenly move an entire corps, involving six or seven thousand vehicles, and rush a battalion of tanks up the same road in the opposite direction. And it must all come off on schedule and without benefit of four-lane parkways, overpasses and traffic lights. Italy usually offers narrow, twisting mountain roads, some of them one-way, pocketed with bomb craters and chocked with by-passes around blown bridges.

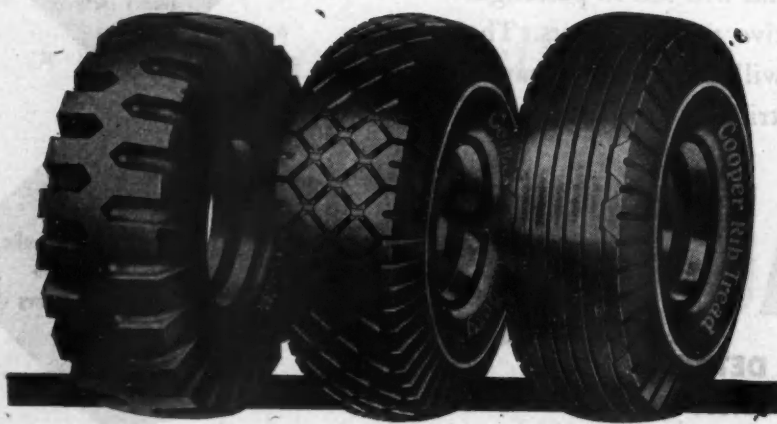
To combat this problem, General Clark, at the suggestion of his G-4, organized a transportation section on his special staff, placed at its head one of the leading traffic experts in America, Lieut. Col. Franklin M. Kreml of Evanston, Ill., former director of the Traffic Institute at Northwestern University, and gave the section authority to control all transportation. Now, in charge of 6000 personnel and with a pool of 1500 trucks at his command, Colonel Kreml and his staff operate and coordinate all Fifth Army traffic movements with the efficiency of a dispatcher sending several hundred trains a day in and out of Grand Central.

The section has two main jobs: moving anything Army wants moved between base dumps and forward di-
(TURN TO PAGE 123, PLEASE)



Take your tire certificate to the dealer displaying this dependable name. You'll save money; and more, you'll be getting tires famed for extra mileage by reason of Cooper's exclusive distributed stress construction.

Thousands of Cooper truck tires are still going to war, but we look forward to the day soon when our full production will again be available to civilian transport.



THE COOPER CORPORATION, FINDLAY, OHIO

THE ITALIAN FRONT— PROVING GROUND

(CONTINUED FROM PAGE 120)

visions, and controlling all highway traffic.

The first job is handled by the "guts of the section," the freight division, headed by Maj. George T. Hensch of Stockton, Calif., formerly a director of port operations on the Pacific coast. Any unit that wants supplies moved must apply to this section a day in advance. There a dispatcher reviews all orders (some may require 500 trucks) and works out in advance a train-like, round-trip schedule to the minute for all convoys for the day, based on the availability of trucks, train arrivals at railheads, the ability of forward dumps to handle the supplies, and tactical movements announced by troop commanders.

Convoys Constantly Checked

By telephone, teletype and radio the section then keeps a constant check on every convoy throughout its run, recording the exact time it reports at designated points or passes one of the six TCPs—Traffic Control Points set up along the highways. All convoy movements are continuously plotted and graphed on a road chart according to speed and location, so that the transportation section has at all times a visual representation of traffic conditions on all of its main highways. In this manner dispatchers can quickly size up the traffic situation and adjust it at a moment's notice in accordance with emergency or priority movements or varying road conditions.

The control and traffic engineer division of the section is headed by a former assistant of Colonel Kreml at Northwestern—Maj. Arthur R. Forster, also of Evanston. He and his staff coordinate and control all highway movements, including all unit and casual vehicles, arrange march orders and schedule bivouacs and messes for the convoys. In a month they may travel 5000 miles on road reconnaissance and another 7000 miles putting up 1500 or more signs. Responsible for all traffic regulations and their enforcement, they have written a 25-page Highway Traffic Control Code for the Fifth Army and

(TURN TO PAGE 124, PLEASE)

CAB HEATING

INDEPENDENT OF ENGINE OPERATION



UH-5B 7" x 10" x 10"

HUNTER CAB HEATER

For Truck Cabs . . . Taxicabs . . . Small Buses

If you want a continuous, adequate flow of heat, undiminished by low outside temperatures, whether your engine is running or not . . . here is the answer to your problem.

This compact unit can be installed in a few minutes . . . four bolts, a connection to the gas line, a wire to the battery line, a hole for the exhaust. Pumps its own fuel, burns any grade of gasoline economically. The "Sealed-in-steel" flame extracts maximum heat value from gasoline within a welded steel tube. Efficient heat transfer is obtained by large radiating surfaces of finned tube over which air is passed by circulating fan. Heat volume can be positively regulated.

READY FOR IMMEDIATE DELIVERY . . . DISTRIBUTOR TERRITORIES STILL OPEN
WRITE NOW FOR FULL INFORMATION

BULLETIN HG-4

Describes all types of Hunter Heaters

HUNTER AND COMPANY

Transport Equipment

CLEVELAND • OHIO

1560 EAST SEVENTEENTH STREET

THE ITALIAN FRONT— PROVING GROUND

(CONTINUED FROM PAGE 123)

published it in three languages—English, French and Brazilian.

This is the section that keeps the supplies rolling. On a big day the freight division will move 15,000 tons and every minute of the day and night know where every ton is, how fast it is moving and when it can be expected at any point. When the

Fifth was piling up supplies for the attack north of the Arno this fall, the traffic control division cleared 231 separate convoys in one day, involving nearly 5000 vehicles. On another occasion it supervised the movement by convoy of 12 divisions in four weeks.

The men who actually moved them, of course, were, again, more unsung Joes of General Tate's army—the truck drivers. Not infrequently they are scheduled for routine runs of 24 hours or more, with a six-hour break,

often make 400 mile round trips, drive all night through the mountains in blackout. In recent months, Negroes have been doing about half of this work in the section and are setting excellent performance records.

At the end of each convoy trip, crews of skilled mechanics in the truck battalions swarm over the vehicles at maintenance pits and check them from bumper to tail light. On duty in shifts all night, they are allowed just an hour and a half to service a truck and prepare it for another long convoy run with a new driver.

The transportation section has proved to be one of the most successful innovations in the Fifth Army's "conflict of logistics." Last spring Colonel Kreml was called to Washington by the War Department for six weeks to report on the new setup and was then sent to England, where for two weeks he helped work out a similar system for American armies in the European theater.

It was another striking instance of the manner in which all theaters of war have profited from the pioneer work of the Fifth Army in Italy, and taken leaves from the new supply book its G-4 and allied supply services have written from Salerno to the Gothic defensive zone.

END

(Please resume your reading on P. 58)



KEEP FLEETS ROLLING WITH BEAR HEAVY DUTY

Combination

Frame Straighteners and Wheel Aliners

Act Now to get more revenue miles out of your fleet; to get wrecked or damaged trucks back in service faster; to stop tire waste; and to correct front end misalignment that wears out parts and causes accidents!

In terms of these savings Bear Heavy Duty Outfit No. 900-83 is not an expense but a profit maker! Act now to get this outfit for your shop! Write now for complete details. You'll be satisfied with nothing less than Bear when you get the facts and see how much more Bear Equipment does and how much easier and better it does every job!

BEAR MFG. CO., DEPT. GCJ, ROCK ISLAND, ILLINOIS



HEART of Tire and Car Conservation is
BEAR
Wheel Alinement...Balancing...Frame Straightening

YOU GET ALL THIS WITH
BEAR HEAVY DUTY No. 900-83

Heavy Duty Frame Straightener
Heavy Duty Axle Press
Regular Axle Press
Wheel Alining Gauge
Caster and King Pin Gauge
Heavy Duty Turning
Radius Plates
Truck Tracking Gauge
Camber and Toe-In Gauge
Tire Scriber
Regular and Heavy Duty
Frame Centering Gauges

Truck Freight Gains in October

The volume of freight transported by motor carriers in October increased 4.8 per cent above September and 0.6 per cent above October, 1943, according to statistics compiled by the research department of American Trucking Associations, Inc.

Comparable reports received by ATA from 315 carriers in 45 states showed these carriers transported an aggregate of 2,668,849 tons in October, as against 2,547,251 in September and 2,651,940 in October of 1943.



J. J. Buhler, for many years field engineer of the Plomb Tool Co. in the Northwest, now is North-western regional director



ALL over America... on ALL kinds of fleets!

FROM Main Street to the Mesabi Ranges, Cle-Air units are contributing to the efficiency of American highway transportation. On Main Street, Cle-Air units protect overworked, heavily-loaded buses from damaging road shocks, reduce tire wear, increase passenger comfort. Likewise, in vast open pit iron ore mines, Cle-Air units help huge, heavily-loaded ore-carrying tractor trucks stand up under extra gruelling service.

Cle-Air spring control units are equally efficient on all sizes and types of buses, trucks, full and semi-trailers. Identical in principal with our world-famous Aerol landing gear for airplanes, they are precision engineered and built to exacting aircraft tolerances. *Only* Cle-Air units have *double-acting* (hydraulic-pneumatic) ride control.

Backed by 50 years manufacturing experience; they are built in the most modern plant facilities.

These are a few reasons why Cle-Air spring control units will contribute to the efficient operation of your fleet. New, illustrated bulletin contains complete information. Send for your copy now!

THE CLEVELAND PNEUMATIC TOOL CO.
AUTOMOTIVE DIVISION CLEVELAND 5, OHIO

GRIBE DEPARTMENT

(CONTINUED FROM PAGE 49)

Just one more thought for this time: a little thing but it means added cost to the operator who has many trucks of various makes. Why not standardize on the placing of the gas tank filler pipe, radiator filler pipe, oil bayonet or checking rod, and the oil filler tube? Here again the engineer should spend just one evening in the field observing the service man in his duties. He fills the gas tank,

first on this side, then on the other; he checks the water in the radiator, sometimes from the inside of the cab, sometimes under the hood or under the body; then he checks the oil level in the motor; on some trucks and buses, if it is discovered that the motor needs oil, he must fill it from the other side of the motor. This is repeated day after day and amounts to many man-hours wasted on this one item alone.

I have just about decided to trade

my tool kit for a crystal ball or a padded cell. Let us hope that your efforts and the improvements brought about during this war will set the engineers to thinking along the lines of meeting the problem of maintenance.

JOHN H. VELOTTA,
Bus & Truck Mechanic,
Los Angeles City
School District,
Hollywood, Cal.

GUNK Keeps 'em Flying



Courtesy U. S. Army Air Forces

GUNK P-96 does what soapy cleaners cannot do . . . cleans clean Army lusterless camouflage paint . . . nothing cleans aircraft engines like GUNK . . . not only takes the cling out of carbonized oil and grease but emulsifies it as well, so that it may be instantly and completely rinsed by sluicing with a water hose. Guaranteed to exceed the performance requirements of the most recent army, navy and air force degreasing and decarbonizing compound specifications.

GUNK facilitates and provides accurate visual inspection of all structural members, controls and engine parts.

GUNK removes thick insulating grease blankets from aircraft, auto or tank engines—restores original thermal efficiency—better cooling.

1 GAL. GUNK P-96 Concentrate Makes 10 Gals. Shipped as a Concentrate.



IF YOUR JOBBER DOES NOT STOCK . . . USE COUPON

CURRAN CORPORATION, Malden, Mass.

Not in stock at my jobber . . . attached to my business letterhead is my check, or M. O. on the condition that you ship me a 1-gallon size GUNK at dealer's net cost, \$1.90—(add 10% west of the Mississippi) by FAST PREPAID RAILWAY EXPRESS.

Name . . .

Address . . .

Passenger Car Chassis Versus Light Trucks

THE GRIBE DEPARTMENT,
DEAR SIR:

My experiences have been mostly with the light delivery truck, therefore I am con-

\$10

victed that no one can make a satisfactory truck out of a passenger car.

For example, the 1-ton truck is a passenger car throughout with larger tires and some with heavier springs. A 1-ton truck carries heavier loads than a passenger car. This extra weight and the larger tires places too much strain on the small spindles causing them to break. One such case where the spindle broke, the truck upset and caught fire. Fortunately our driver escaped with slight burns on the hands and face.

This same strain is also too much for the steering mechanism. Tie-rod ends and drag-link ends require constant changing to maintain safety, proper steering and wheel alignment. The steering column housing is too weak, as it continues to break just above the steering-gear case. The job of replacing this housing on some trucks requires removing the complete assembly, as the cab of the truck is too small to allow pulling it off from the inside.

The rubber-mounted spring shackles may be all right for passenger cars but are a headache to the truck operator. The extra weight on these passenger car shackles causes them to wear rapidly, and once they become loose, the rough roads and twisting of the frame soon snap the main spring leaf. Give me the shackle that can be greased. Grease is still cheaper than parts.

In the act of replacing rear spring shackles it is necessary to remove the

(TURN TO PAGE 130, PLEASE)

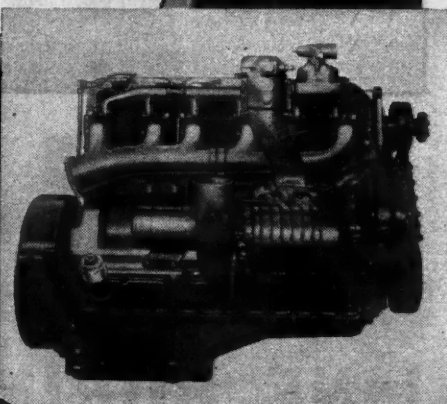
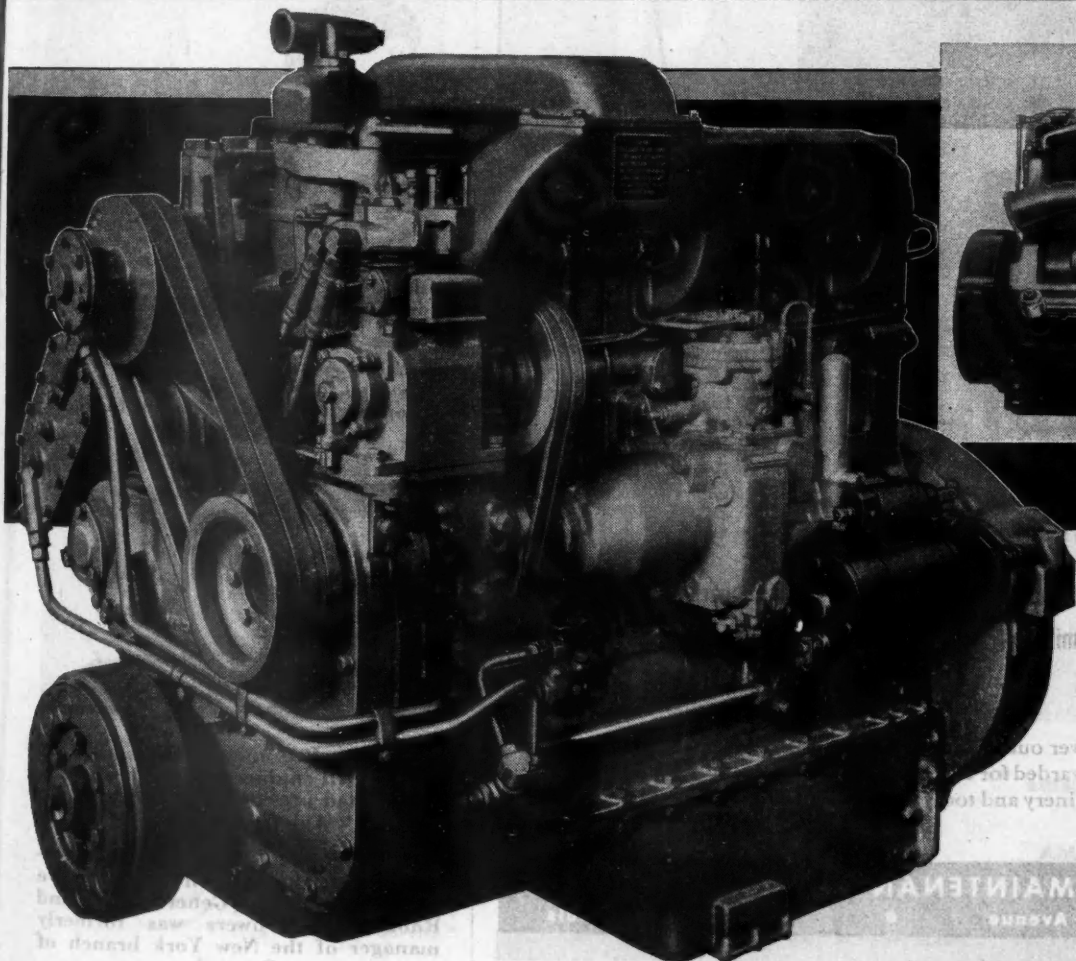
Combining "something old and something new," Cummins—builder of the original high speed diesel—now introduces two additions to the line of Cummins Dependable Diesels: Models NH-600 and NHS-600.

The "something old" is the basic design of the well-known Model H Cummins Diesel... a design proved sound by a 12-year demonstration of low-cost, dependable performance in all types of heavy-duty applications.

The "something new" in NH and NHS Cummins Diesels includes dual intake and exhaust valves, higher rpm., larger piston displacement and many other refinements that will give you "more power per pound" and the Nth degree in power efficiency... that will assure increased payloads and higher profits on your tough jobs—automotive, industrial or marine. A comprehensive brochure containing complete specifications and engineering data on Series NH and NHS Cummins Dependable Diesels is now available. Write for your copy of Bulletin 5206-11 today. CUMMINS ENGINE COMPANY, INC., Columbus, Indiana.

Model	No. of Cyl.	Bore and Stroke	Displacement (cu. in.)	HP. (Maximum)	RPM. (Maximum)	*Weight	Weight per Horsepower	*Dimensions
H	6	4 $\frac{7}{8}$ " x 6"	672	150	1800	2165	14.43	57 $\frac{1}{2}$ " x 46 $\frac{1}{2}$ " x 30 $\frac{1}{4}$ "
HS	6	4 $\frac{7}{8}$ " x 6"	672	200	1800	2580	12.9	58 $\frac{1}{2}$ " x 46 $\frac{3}{4}$ " x 29 $\frac{3}{8}$ "
NH	6	5 $\frac{1}{8}$ " x 6"	743	200	2100	2500	12.5	58 $\frac{3}{4}$ " x 49 $\frac{3}{16}$ " x 28 $\frac{7}{8}$ "
NHS	6	5 $\frac{1}{8}$ " x 6"	743	275	2100	2850	10.36	60 $\frac{1}{2}$ " x 48 $\frac{13}{16}$ " x 32 $\frac{3}{8}$ "

*Weights and dimensions are for engine as designed for automotive application (as illustrated) and will vary with units designed for industrial and marine service. Weights are based on minimum use of light weight materials.



275 hp.

Supercharged Model NHS-600, 275 hp. at 2100 rpm. (maximum). Designed for heavy-duty automotive, industrial and marine service. For specifications, see table above.

GRIP DEPARTMENT

(CONTINUED FROM PAGE 126)

old ones by driving them out from the inside of the frame. This job is a neglected one, because a cross-member of the frame interferes. Why not place that cross-member a few inches one way or another from its present location to allow room for this task?

A great many generators are being made without means of greasing the housings. Therefore we must con-

tinue to dismantle the generator and grease the bearing or replace it, which is often the case.

Speedometer cables continue to break due to the sharp curve in the cable housing where it is connected to the speedometer gears just back of the transmission. This trouble could easily be corrected without added expense to the manufacturer.

Delivery trucks making curb deliveries in localities where heavy snow and ice is encountered, should be equipped with locking differen-

tials, eliminating the use of tire chains after the center of the streets has been cleared of snow sufficiently enough to make driving safe without tire chains.

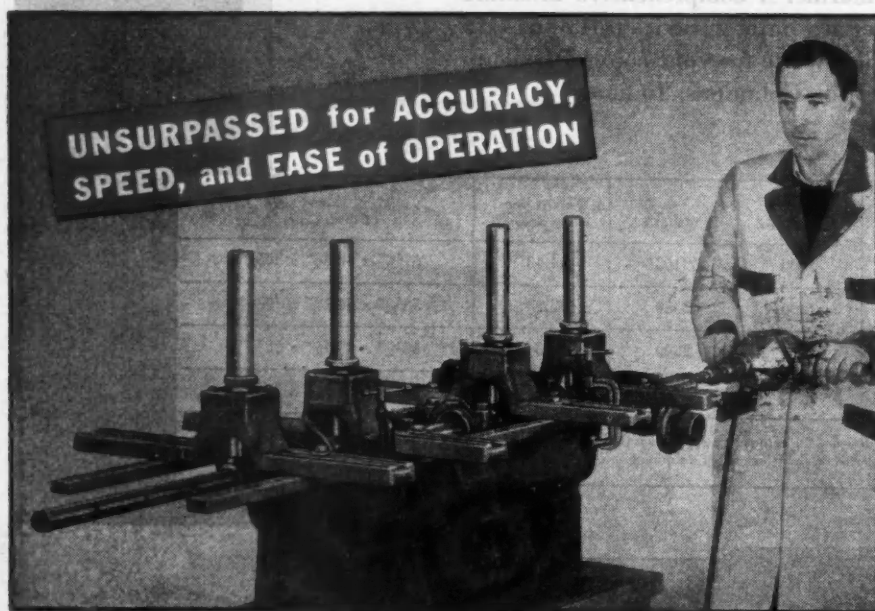
Here is something for the engineers to work on: Produce a metal that will expand and contract with a sudden change in temperature without cracking, as has been done with certain types of glass.

Here is also something for the paint manufacturing companies to work on: Place paint in quart cans that can be screwed on to the paint gun, eliminating the cleaning of the paint container of the paint gun each time a different color is desired. Also the container can be removed from the paint gun, the lid replaced and the remaining paint conveniently stored for future use.

MILO R. SHUCK,
Garage Foreman, Rail-
way Express Agency,
Sioux City, Iowa

END

(Please resume your reading on P. 50)



AMMCO

Model "L42" Universal

LINE BORING MACHINE for Main and Camshaft Bearings

- Takes care of all cars and trucks.
- Sets up in less than 10 minutes.
- Needs no centering rings.
- Accurately bores bearings 1 3/4" to 4" dia.
- Power driven or hand operated.
- AVAILABLE . . . Ask for new catalog page.



Over our factory flies the ARMY-NAVY "E"—awarded for excellence in the production of machinery and tools vitally needed to win the war.

AUTOMOTIVE MAINTENANCE MACHINERY CO.
2100 Commonwealth Avenue • North Chicago, Illinois



J. W. McLaughlin, left, who has been with Dodge since 1929, has been appointed Cincinnati regional manager of the Dodge division, Chrysler Corp.

Mark M. Whipple, right, a native of Brooklyn, has been promoted to Boston regional manager for Dodge



Henry J. Brunnier, left, nationally known civil engineer of San Francisco, was elected president of the American Automobile Assn.

John E. Powers, right, has been assigned special duties on the executive sales staff of the General Tire and Rubber Co. Powers was formerly manager of the New York branch of General

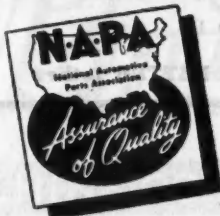
Operation costs per mile
are lower with

*American
Brakeblok*
THICK BLOCKS



Stopper says -

"Maintenance men who have tough braking problems should ask for American Brakeblok's Free Advisory Service."



Jobbers everywhere
maintain supplies.
Master stocks in 38
N.A.P.A. warehouses.

AMERICAN BRAKEBLOK, DETROIT 7, MICH.
DIVISION OF

AMERICAN
Brake Shoe
COMPANY



Increased Ceiling on Tires to Continue Until April 15

All temporary increases in manufacturers' and brand owners' ceiling prices for civilian replacement tires,

which were to have expired on Dec. 15, 1944, will be continued in effect until April 15, 1945, the Office of Price Administration announced.

These temporary increases are: (1) 8.9 per cent of the maximum retail price on passenger car and motorcycle tires, and (2) 6.5 per cent of the maximum retail price on all truck and bus and certain special service type tires.

Elimination of a 12.5 per cent premium for rayon construction tires has also been deferred.

Price Ceilings For Army's Surplus Jacks Established

Wholesale and retail ceilings for Army hydraulic jacks of 10-ton capacity sold for civilian use were established by OPA.

These ceilings, which became effective Dec. 16, 1944, are \$70 on sales by manufacturers to jobbers or distributors, and \$100 on sales by any seller to consumers.

Treasury Procurement Division is selling the jacks back to the manufacturers who originally produced them at negotiated prices that are below the ceilings determined under the formula already existing for Government sales.

OPA Sets Ceiling Prices On Used Army C-1 Tires

Used C-1 rubber tires no longer fit for Army service, which are to be sold by the Government for civilian use, were provided with wholesale ceiling prices by the OPA.

These ceilings, effective Dec. 12, 1944, are \$30 per ton, f.o.b. shipping point, on sales by the Procurement Division of the Department of the Treasury to manufacturers, and \$40 per ton, f.o.b. destination, on sales by manufacturers to tire dealers.

Tire manufacturers are expected to resell the tires to dealers, vulcanizers and recappers for repair and resale to the public. Ceiling prices already established in the retail rubber tire regulation will apply on sales to consumers. They vary according to the condition of the tire.

No estimate is available as to the number of these tires to be turned over for civilian use. According to information supplied OPA by the Army, the tires come chiefly from the war fronts and are taken from various types of Army vehicles. Although no longer suitable for Army use, they may be reconditioned for limited civilian service.

Used Passenger Car Tires Removed From Ration Control

Used passenger car tires still in the hands of tire dealers, most of which are the residue of the tires purchased from motorists by the Defense Supplies Corporation two years ago, (TURN TO PAGE 134, PLEASE)



...a name to remember when you think of BETTER lathes

A lathe is judged by the kind of job it does, and by nothing else. That one fact explains why Logan Lathes have made such headway. The men in the shops, and the executives as well, like the kind of job that Logan Lathes do. Here are four reasons why:

- Advanced engineering in the spindle mounting, in the countershaft, in the back gear arrangement, in the bed construction, and in many other points.
- More exacting standards and closer tolerances are maintained in building Logan Lathes.
- Logan Lathes are built in a new, modern factory, equipped with the best machinery and tooling obtainable.
- A management policy, stressing quality of production rather than volume that has produced a personnel of loyal workers.



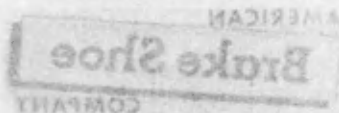
Further messages in this series will give you more reasons why it will pay to see your Logan dealer or get the Logan catalog before you buy a lathe.

LOGAN ENGINEERING CO.

CHICAGO 30, ILLINOIS

A-2

a name to remember when you think of BETTER lathes

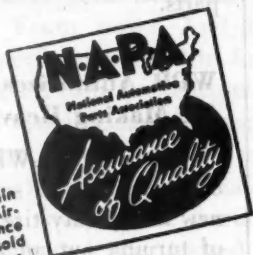




TOOL AVAILABILITY LIST

THE NEW BRITAIN MACHINE CO.

New Britain, Conn.



The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Needs is sold by leading Jobbers.

PRECISELY FITTING YOUR NEEDS TODAY!

Wherever a nut must be turned in today's vital maintenance services to repair a motor or keep some vehicle rolling, there's a New Britain Wrench Socket available for the job. Precisely fitting these famous Sockets of greater strength—better fit are the equally dependable New Britain Drive Parts that put them to work for you.

These and other specialized New Britain Tools that speed up your repair work and keep critical wheels turning are obtainable now... Our Tool Availability Lists tell you exactly **WHAT** Tools are available—**HOW**, as a qualified mechanic, you can get them—and **WHEN**! End your speculation about new Tools and deliveries—ask your NAPA Jobber to show you one of these realistic Lists **TODAY**! The New Britain Machine Co., New Britain, Connecticut.

New Britain



The Army-Navy "E" Emblem, with stars, flies over New Britain's plants, signifying outstanding production of machine tools, aircraft engine parts and projectiles.

THE NEW BRITAIN MACHINE CO. HAND TOOLS

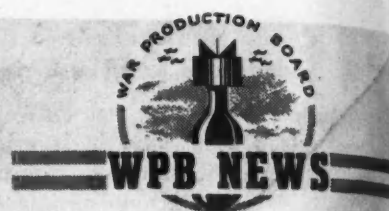
OPA NEWS

(CONTINUED FROM PAGE 132)

have been removed from rationing, effective Dec. 5, under the terms of Amendment 91 to OPA's Ration Order 1-A. OPA stated that distribution of these used tires had become very spotty, with certificate holders being unable to find suitable tires in many areas and, for this reason, their rationing had become an unnecessary burden on the local boards.

Used truck tires will continue to be rationed, however, OPA emphasized, and all tires, both new and used, will remain under price control.

In removing used passenger car tires (Grade III tires) from rationing, OPA also revised the definition of Grade I tires to include factory-seconds and tires made of reclaimed rubber. Both of these types, as well as new and undamaged synthetic rubber tires, will continue to be distributed only upon presentation of a valid tire rationing certificate.



WPB Names Task Group To Investigate Parts Shortage

A critical shortage of spare parts for the repair of heavy duty truck engines, landing craft and other equipment affecting both army and navy operations has prompted the War Production Board to establish a special task group headed by Robert M. Hatfield, Jr., of Cleveland, Ohio, a former WPB executive and until recently a lieutenant in the navy, it was announced by J. A. Krug, WPB chairman. Mr. Hatfield will serve as a special assistant to Harold Boeschenstein, deputy vice chairman for operations.

"Thousands of trucks have been in service continuously from two to three years, and they are beginning to break down," Mr. Hatfield said. "Obviously, they become useless if spare parts are not available to repair them."

"Many trucks and bulldozers are used almost 24 hours daily. This continuous subjection to gruelling work, coupled with battle damage and weather conditions in the Pacific, which hasten corrosion, and losses in other war theaters, are additional factors responsible for the serious situation with which we are now concerned. In some areas repair of ships has been delayed for lack of repair parts."

WPB Authorizes New Facilities for Making Heavy-Duty Tires

According to WPB's latest plans, construction will soon be started on new heavy-duty tire facilities capable of turning out an additional 1,000,000 tires per quarter. The critical needs of the Army as well as essential civilian transport for heavy-duty tires prompted the Army and the WPB Rubber Bureau to embark on this program.

The program calls for entirely new facilities, and there will be no ban on small plants or newcomers to the tire industry. Location of the plants has (TURN TO PAGE 136, PLEASE)



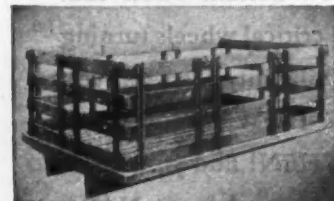
Six wheelers and heavy duty trucks.



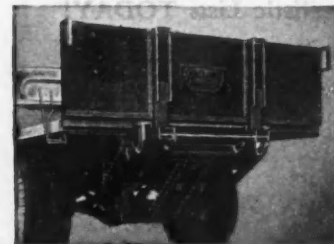
For short and long W. B. chassis.



Special for wooden bodies.



Stake or platform bodies.



Solves manpower problem.

**"SUPER" HYDRAULIC
HOIST DUMP BODIES**
sizes 5 to 30 ton capacity.

**MODEL "ZB" PLATFORM
HOISTS**

make dump bodies out of flat-bed, stake, or grain bodies.

**"STAKE BODIES"
"PLATFORM BODIES"**
Lengths up to 20 feet.

"LIFT GATE"
HYDRAULIC tailgate lift for loading truck van bodies, platform bodies, etc. One man does the work of three!

Write or wire for literature and prices Nation-wide Sales and Service



ANTHONY CO.
STREATOR, ILLINOIS



Shop Records Prove How FRAM Pays For Itself Many Times Over!

When we say that Fram filters save motors, parts, oil and overhauls, we're not just making vague claims. Instead, we're giving you:

Hard Facts . . as proven by actual maintenance records from shops and garages the country over. Listen to what one big fleet owner says: "More than 200,000 miles before reboring, using Fram!" And a Los Angeles operator writes: "Wear found to be 3 and 4 times less on engines equipped with Fram." While a Kansas City bus company reports: "Fram cuts engine wear in half." Those are facts, not fiction, and we're backing them up with . . .

Cold Cash . . under the famous Fram guarantee. Yes, if after 90 days trial you're not convinced that Fram saves its cost many times over, we'll gladly refund your money. You've everything to gain and nothing to lose by trying Fram filters!

Act Now . . If your fleet has no filters, put on big, heavy-duty Fram now! And if your fleet has filters, step up performance with Fram Replacement Cartridges. Genuine Fram Replacement Cartridges keep oil physically and visibly clean by filtering out dirt, dust, carbon and sludge, while Fram's exclusive chemical treatment impedes formation of acids and other harmful corrosives that eat away motor parts. Keep your fleet rolling! Call your Fram jobber today! In Canada: J. C. Adams Co., Ltd., Toronto.

FRAM CORPORATION, Providence 16, R. I.

FRAM

Oil and Motor Cleaner

*"Have You Seen
Our Maintenance
Records Since
Installing FRAM?"*



*"Yes, Sir!
We're Really Saving
Parts, Oil, Motors
and Overhauls"*

**NO ENGINE
IS COMPLETE
WITHOUT AN
OIL FILTER.**



WPB NEWS

(CONTINUED FROM PAGE 134)

not yet been decided, but availability of labor will be the determining factor.

Present production of military type tires is about 4,100,000 each quarter. The expansion of existing facilities and the recruitment of additional manpower should raise the total to 5,700,000 per quarter. The new facilities, which will not be completed be-

fore late fall of 1945, will increase quarterly production of heavy-duty military type tires to an all-time high of 6,700,000 tires per quarter.

WPB Order M-216 Revoked

Revocation of Order M-216, which established certain standards for the preservation of new automobiles and trucks held for rationing, was announced by the War Production Board.

The order was issued Aug. 29,

1942, as part of a joint program of WPB, the OPA, RFC and ODT to protect about 393,000 new automobiles and 130,000 commercial vehicles in the possession of producers, distributors, and dealers throughout the United States. It was last amended March 7, 1944.

At the present time, there are fewer than 20,000 automobiles left in the pool and fewer than 5000 trucks, WPB said, and these vehicles are now in the hands of a relatively few large dealers who in the past two years have been well educated in the care of these vehicles.

U. S. Order For Federal Trucks Increased By \$5,200,000

An additional order for military trucks amounting to \$5,200,000 has just been awarded by the Government to the Federal Motor Truck Co. of Detroit, according to T. R. Lippard, president.

Although Federal is producing thousands of military trucks for our armed forces, several models of commercial trucks for essential civilian use have been in daily production for a number of months.

George Stout Named Chairman AAC Shows Committee

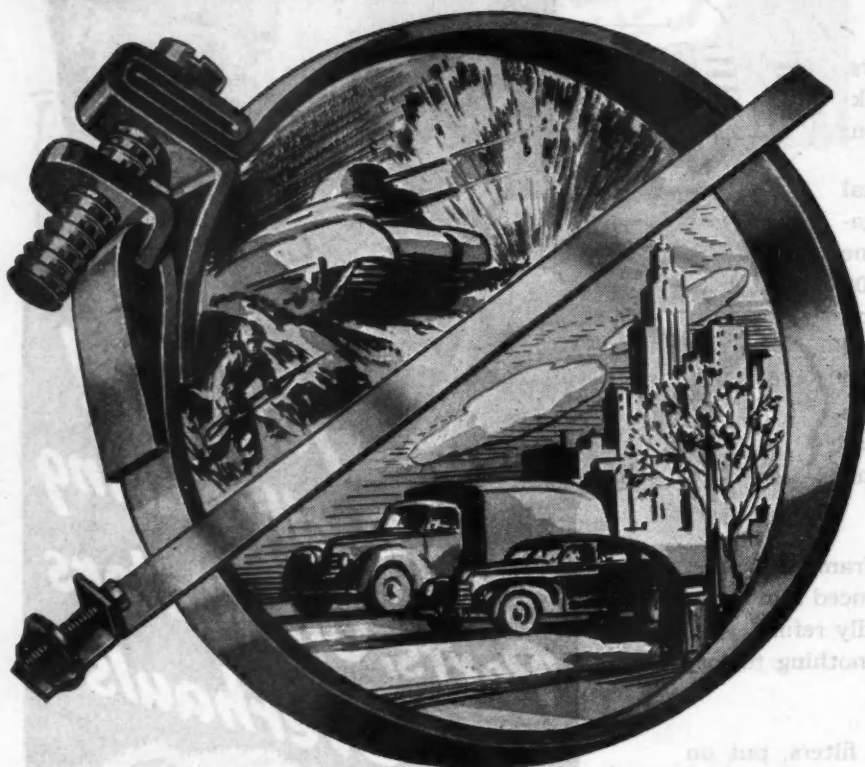
R. W. Case, Jr., president of Automotive Advertisers Council, announces the appointment of George W. Stout, Advertising Manager of the Perfect Circle Companies, as Chairman of the Council's Committee on Shows.



Amos E. Heath, left, formerly manager of the Washington branch, Car Wood Industries, Inc., has been advanced to the position of general district manager of the Washington and Central Seaboard district.

Leslie W. Neumann, right, has been promoted to St. Louis regional manager for the Dodge Division, Chrysler Corp. Neumann, a native of Detroit, has been with Dodge since 1936.

CENTRAL UNIVERSAL HOSE CLAMPS



POWERFUL DEPENDABLE

A SINGLE LENGTH FITS OVER 100 HOSE SIZES

• **Easiest to Use** . . . Fastest clamping action . . . Quickly installed or removed without disconnecting the hose line . . . Can't strip or loosen; self-locking, leakproof, rustproof . . . Simple to use in hard-to-get-at places . . . Standard for U. S. combat vehicles and all civilian cars, trucks, farm machinery.

• **Ideal for Service** . . . Meets every service need . . . Can be used over and over again . . . Has plenty of take-up, even on synthetic hose . . . 100% universal; furnished flat . . . Reduces clamp inventory—assures having right size clamp on hand at all times, because one length fits so many different hose sizes.

SEND FOR

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SAMPLE

No. 45-1C

CENTRAL EQUIPMENT CO. 900 S. WABASH AVE.
CHICAGO 5, ILLINOIS

CONSTANT VELOCITY

Power Transmission

through sharp steering angles

Without Torsional Vibration

or Traction Loss...

New Process

TRACTA

JOINT

SIMPLER . . . EASIER TO ASSEMBLE . . . UNAFFECTED BY ORDINARY WEAR

Simpler than other known constant-velocity universals, the New Process TRACTA JOINT not only eliminates all torsional vibration . . . not only works perfectly through the compound angles set up by steering and independent-spring suspension . . . but its action is unaffected by ordinary wear of steering and driving parts.

Just take a quick glance at the four simple parts of the TRACTA JOINT. Notice that the bearing surfaces are large in area. That means unit loads are low and friction losses are negli-

gible. There is no brinelling . . . no free-moving balls to respond to centrifugal forces . . . no large rotating masses to set up gyroscopic precession. Assembly is a matter of seconds, without use of tools or fixtures.

● Write today for sizes, torque capacities, operating and test data. Find out how this simple, easily-assembled joint works with absolute smoothness, how it improves traction, saves tires from scuffing, reduces noise and vibration, increases maneuverability, and lengthens joint life.



ONLY 4 SIMPLE PARTS



NEW PROCESS GEAR CORPORATION

Differentials, Axles, Transmissions . . . Aviation Gears
SYRACUSE 1, N. Y.

BALL BEARINGS

(CONTINUED FROM PAGE 53)

older ones used first. This procedure is especially advisable in the summer when warm weather liquefies the packing grease. If the boxes are arranged in neat piles on the shelves, with the numbered edge facing the aisle, they will not only be easily found and inventoried but, also, they will retain the grease, since the folds are on the top.

Lubrication of Ball Bearings

The mechanic should, if possible, use an approved brand of grease to suit the specific operating conditions of the bearing. Next, the main precaution to observe is to keep dirt from entering bearing or grease. In many cases this happens as a result of dirty grease can lids, or the use of dirty tools or nozzles.

Ball bearings require a comparatively small amount of grease. Housings should be filled from one quarter to one half full. When installing new

bearings, the shop man should fill the sides of the bearing and put relatively little inside the housing. Care should be taken not to over-grease. Excessive greasing, a common fault, causes overheating due to the churning of the grease. Some bearings require greasing at frequent intervals; others may run six months or longer. The mechanic should be guided by the instruction plate or the maintenance manual. Over a period of time, grease is subject to deterioration and contamination. When overhauling, the housings should be cleaned out and repacked with clean lubricant. It is best to remove the bearing, wash out the housing with clean hot kerosene (110 to 125 deg.), and flush with a light mineral oil.

Washing hardened grease from the bearing itself should be done in the following manner. Soak the bearing in hot kerosene. Rotate bearing slowly, using an air hose to blow it dry. Dip in clean kerosene and repeat rotation and use of air hose. Turn the bearing by hand, exerting a thrust first on one side then on the other until the particles of grease are loosened. Rinse in kerosene and dry.

Use of Fluid Lubricants

Oil is the ideal form of ball bearing lubricant. However, it is not used as extensively as grease because it is so hard to seal. Oil lubrication is used for bearings operating under higher speeds, under higher or lower temperatures, or for larger size units where great reliability of the lubricant is required. Bearings lubricated in this way require frequent replenishment. Especially for extremely high speeds, first quality clean oil is necessary.

Lubricating arrangements differ depending on speed, temperature, and other conditions. Oil is subject to gradual deterioration and contamination from dirt and moisture. The sludge which results is decidedly harmful to the bearing and causes premature wear. When the oil is changed, and especially when the unit is extremely dirty, the housing should be flushed with clean hot kerosene, solvent, or a good grade of carbon tetrachloride. Initial flushing should be done with a light oil, and the next one with the same grade used to lubricate the bearing. When adding new oil, it is important that

(TURN TO PAGE 142, PLEASE)

FAST, FLAWLESS WELDS
NO "MAGNETIC BLOW"
A TAP FOR EVERY HEAT
A HEAT FOR EVERY JOB
LIGHT GAUGE METAL
TO HEAVY CASTINGS
ALL-ASBESTOS INSULATION
NO DIALS, LEVERS, ETC.
10 MODELS 125-400 AMPS.
COMPLETELY EQUIPPED

SO MUCH
for so little
WITH
MARQUETTE
A.C. ARC WELDERS

LOW INITIAL COST
LOW OPERATING COST
LOW MAINTENANCE COST

You don't need a slide rule to recognize the many advantages of Marquette A.C. Arc Welders in your garage.

The super-efficiency of the Marquette transformer has no equal in converting the always available, low cost power line A.C. to the smooth, steady flow of matchless welding power. The many accurately controlled heat stages supply the correct power for easy, fast, strong and uniform welds on everything from light body and fender work to heavy chassis frames. Just the thing for quick, "just like new" repairs on hard-to-get parts. The added A.C. feature of balanced polarity assures adequate penetration and perfect metal control—both at the same time! You'll get more vital transportation back on the road, in less time and at far less cost with MARQUETTE Welders on the job.

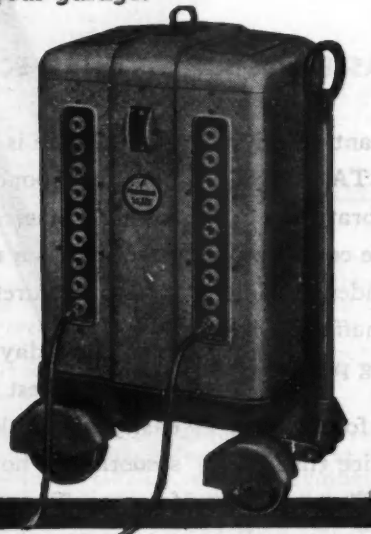
BUY THE BEST . . . BUY MARQUETTE

Send for free, 24 page, illustrated booklet

MARQUETTE MFG. CO., INC.
 Minneapolis 14, Minn.

MARQUETTE
 REGISTERED U.S. PAT. OFFICE

a.c. arc welders



delays due to Jack-Knifing

★ VARI-LOAD ★ ELECTRIC BRAKES

THERE are many times when it's plenty tough for even the most skillful and experienced driver to cope with road conditions that lead to jack-knifing of big tractor-trailer combinations. And he can't expect help from trailer brakes having a tendency to lag.

That's when Warner "Vari-Load" Electric Brakes really prove their worth. The *controlled action* of these simple, instant acting, efficient brakes materially reduces the chances of jack-knifing.

AND NOW . . . with Warner "Vari-Load" Electric Brakes PLUS the New WARNER CONTROLLER the driver has everything in his favor!

As soon as slippery road conditions are encountered, the driver can pre-set the "Vari-Load" dial on the dash—so it adjusts the Electric Brakes on the trailer to give correct braking to meet road and load conditions. Then foot pressure on the tractor's regular brake pedal activates the new Warner Controller which provides *complete synchronized operation* of the tractor's hydraulic brakes and the trailer's Electric Brakes. With this *absolute control*, all brakes "come in" at the same time—but with various *amounts* of power. Therefore, rear trailer wheels get the effect of coming in first—and tendency to jack-knife is prevented, thus giving protection to driver and load—and avoiding costly lost time due to wrecked equipment.

WARNER ELECTRIC BRAKE MANUFACTURING COMPANY • BELOIT, WISCONSIN

NOW — Present Owners of Trailers with Warner Electric Brakes Can Have This New WARNER CONTROLLER



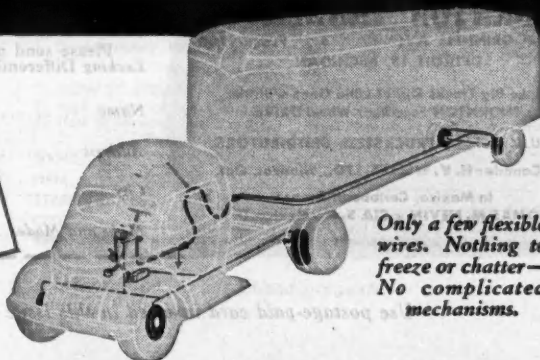
The new Warner Controller — simple and compact — synchronizes the hydraulic brakes on tractor with the Electric Brakes on trailer. The tractor's regular foot pedal operates both braking systems. This development creates smooth foot-touch tractor-trailer braking under all conditions—eases driving strain—assures greater safety. Controller is easily and quickly fitted into hydraulic brake line. See your Warner dealer about changing over your present equipment.

FOOT PEDAL PRESSURE CONTROLS BRAKES ON BOTH TRACTOR AND TRAILER



WARNER

ELECTRIC BRAKES



Only a few flexible wires. Nothing to freeze or chatter—No complicated mechanisms.

BALL BEARINGS

(CONTINUED FROM PAGE 138)

no dirt enter the housing. Frequent inspections should be made for cleanliness of oil as well as oil levels. This will, in most cases, determine the life of the bearing.

Bearing Seals

The bearing seal has a dual purpose: It prevents leakage of the lubri-

cant. It prevents entrance of dirt, grit, moisture, fumes into the bearing housing. Some common types include plain, grease-grooved, felt, leather, cork, labyrinth, diaphragm and concentric spring pressure seals. Since it is sometimes hard to seal a bearing, slingers, shields, baffle plates, and grease chambers are used to aid the work of the seal.

The plain type of seal is used only where conditions are clean or at low speeds. Its efficiency is increased by

packing the housing back of the seal with an approved sealing grease. Grease grooved seals are packed with an approved hard sealing grease. They are used in assemblies operating at a low temperature.

Felt seals are used under more difficult conditions and as anti-friction bearing seals. Felt gives ample protection but should be replaced every time the machine is overhauled. Use of inferior grades results, in most cases, in poor sealing of the lubricant. For successful sealing with felt seals, the shaft surface should be smooth. Seals should be soaked in oil before installation. They should be put in place correctly and under the proper amount of pressure. The manual will give specific instructions for each application.

The flange type seal employs a flanged shaped sealing member with a wiping lip which presses lightly against the shaft. This flange may be made of leather, asbestos or a composition. A spring is used to exert an even pressure against the lip to insure positive sealing.

The seal should be installed with the wiping lip towards the ball bearing. It is assembled by means of a press fit into a bore or counterbore into the housing. Most seals of this type are prelubricated, but it is advised that the seal be dipped in oil just before it is applied, to guard against a dry seal operating on a dry shaft for the first few turns. Sometimes it is advisable to smear shellac, gasket cement, or white lead around the outside diameter to seal it to the housing.

The seal should be pressed into the recess with an arbor press using a flat ram or pressing tool. The diameter should be not less than .010 in. smaller than the outside diameter of the seal. A wood block should be used between the ram of the press and the seal. If an arbor press is not available, the seal may be tapped in place with a mallet, using a wood block to protect it from the blows. Care should be taken to get the seal home, flush and at right angles to the shaft. The proper and efficient operation of the ball bearing depends in a great measure on the seal.

END

(Please resume your reading on P. 54)



lies the Secret
that Makes Wheels *Pull*
instead of SPIN

The THORNTON

Automatic-Locking DIFFERENTIAL

—greatest advance in differential design—is now available to truck owners who must keep their vehicles moving . . . pulling on through extremely tough surface conditions the year 'round.

This war-tested *Locking* differential stops one wheel spin which normally stalls a vehicle in snow . . . sand . . . soft fields . . . mud . . . muck, etc., because both wheels *must* rotate when power is applied.

Allows full maneuverability of vehicle. Installed easily on trucks for pull, safety and where time or delivery schedules must be maintained. Use coupon to obtain full facts *free*.



(Available with Limitation Order Certificate L-158)

MAIL THIS COUPON

THORNTON TANDEM CO.
8775-N GRINNELL AVENUE • Phone 9700
DETROIT 13, MICHIGAN

Make Big Trucks Out of Little Ones with the
THORNTON Four-Rear-Wheel DRIVE

In U.S.: Sold by TRUCKSTELL DISTRIBUTORS
In Canada: M. V. WELLES, LTD., Windsor, Ont.

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THORNTON TANDEM CO.
8775 Dept. 104 Grinnell Ave.
Detroit 13, Michigan

Please send me data on your Automatic-Locking Differential.

Name.....

Address.....

City..... State.....

Make and Model..... Year.....



LET SPARK PLUGS HELP *Hold Down Costs*

Unless your plugs are of the correct Heat Range, and kept clean and accurately gapped, you'll operate under the handicap of a constant trickle of excess expense. Case histories of thousands of fleets furnish unquestionable evidence.

HERE'S THE SIMPLE REMEDY

1. Let the AC Heat Range guide you to the right type of plug for each individual engine.
2. Clean and regap all plugs every 3,000-5,000 miles.

Through those two simple practices, you will keep spark plug expenses at the minimum. You will also get more reliable operation and conserve gas, oil, and materials for yourself—and for our fighting forces.

BUY WAR BONDS • BRING VICTORY QUICKER

AC SPARK PLUGS

SEND FOR AC SHOP MANUALS

Field Service Department, AC Spark Plug Div., G. M. Corp.
910 Union Industrial Building, Flint, 3, Michigan CCJ-1

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

- | | |
|--|--|
| <input type="checkbox"/> HOW TO SERVICE SPARK PLUGS | <input type="checkbox"/> How to Service Fuel Pumps |
| <input type="checkbox"/> How to Service Spark Plug Cleaner | <input type="checkbox"/> How to Service Air Cleaners |
| <input type="checkbox"/> How to Service Oil Filters | <input type="checkbox"/> How to Service Speedometers |
| <input type="checkbox"/> How to Service Ammeters and other Instruments | |

NAME _____
FIRM _____
STREET ADDRESS _____
CITY _____ STATE _____

WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 36)

ODT are doing a good job—largely because they tend to ignore the amended orders and the mass of instructions originated in Washington. ODT field representatives are closer to industry than ever before and handling problems in a way that helps operators to keep 'em rolling.

Where Are Delivery Reports

Are truck operators or ODT district offices responsible for the failure of the ODT's Allocation Section to keep its records up to date? The Allocation Section doesn't know. But what it does know is that "reports of delivery" are not being mailed in to Washington as provided by the rationing system. Its records show that of the certificates of transfer approved, it has received the "report of delivery" in only about 35 per cent

of the cases. As a result it is impossible for the Allocation Section to determine how many certificates of transfer have been cashed and how many remain uncashed. Will truck operators and ODT district offices please cooperate?

9 PM Training Films

The U. S. Office of Education has prepared scripts with ODT cooperation for nine training films dealing with truck preventive maintenance. It's a \$45,000 Government investment. The films will be available about July 1. Five are being made in Hollywood and four in New York. When completed, they can be purchased for \$20 a film, 16 mm., black and white, motion, with narrative sound track right on the film.

Middlekamp Quits WPB

John Middlekamp, director of the WPB Automotive Division, submitted his resignation in December to become effective Jan. 6. Fred Glover was slated to take his place. Friends said it was a case of doctor's orders because, as they put it, of "overwork and frustration." Mr. Middlekamp did a good job, never losing sight of civilian requirements. It was said he would become Washington representative for the Mack company.

END

(Please resume your reading on P. 37)

Manhattan Rubber Gets 3rd Army-Navy "E" Award

The Army-Navy "E" award for meritorious service on the production front has been presented to employees of The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

Mid-Continent Petroleum Forms New Department

The Mid-Continent Petroleum Corp., Tulsa, Okla., has announced the formation of a new lubrication sales department under the management of J. W. Basore, a native of Birmingham, Ala. Mr. Basore is directly responsible to D. C. Wixson and T. E. Fitzgerald in matters affecting the marketing and distributor sales divisions, respectively.

Plans include the appointment of divisional lubrication sales engineers under the joint supervision of Mr. Basore and the respective division managements.

here's *Skid!* ...he doesn't know



GRAFILD

BRAKE LININGS

will stop 'em!

Skid will throw out an anchor, sink a harpoon into a convenient telegraph pole, bail out in a parachute, or even use a giant magnet to brake. But *you* don't have to do this. For certain and safe braking, you can trust GRAFILD brake lining. GRAFILD takes gentle and violent braking in its stride. That's why more and more shops are using GRAFILD brake lining for sleek, brisk stops. Get in line — reline with GRAFILD.

WORLD BESTOS CORP.

PATERSON • NEW JERSEY

year after year for 22 years —

Now the Battle-Tested
AUSCO Post-War
Hydraulics
GREATEST OF THEM ALL!

Forerunner of a complete new line of Mechanical and Hydraulic Jacks!

● A LIMITED NUMBER of these Ausco Jacks with the post-war performance features are available NOW due to easing war requirements. Insofar as military requirements permit these Battle Tested Ausco Hydraulics, with their many advanced, post-war features, are ready now to aid in keeping America rolling. See your Ausco jobber today.

AUTO SPECIALTIES MFG. CO., St. Joseph, Michigan; Windsor, Ont., Canada.



Watch **AUSCO**
for the Latest in Jacks

FOLLOWING IS A PARTIAL LIST OF WAR MATERIALS AUSCO IS HELPING TO PRODUCE:
Ordnance Ammunition Steel Castings ☆ Trench Mortar Bombs ☆ Complete
Tracks for Tanks and Combat Vehicles ☆ Hydraulic and Mechanical Jacks.

EDITORIALS

(CONTINUED FROM PAGE 37)

which deserves the cooperation of all fleet operators.

Violations have been so flagrant that the protests of conscientious dealers finally were heeded by the OPA. The campaign is aimed to promote a fairer competitive situation and to protect the public from unscrupulous dealers.

Violations of used-car price ceilings have taken a variety of forms: the "paying of bets," unreasonably low prices for cars traded in, refusal of cash and insistence on financing "on time," charging a warranty price for an "as is" vehicle, charging for a more expensive car than is described on the certificate of transfer.

Unfamiliarity with price regulations is considered to be the reason why many purchasers have not reported violations to the OPA. Recognizing this, the OPA will take pe-

riodic samplings of sales and interview the purchasers. By this direct method it hopes to uncover violations, secure refunds of overcharges, institute treble damage suits for willful violations, and recommend criminal prosecution for flagrant or repeated violations.

It is a worthwhile campaign in which fleet operators can, and should, wholeheartedly cooperate.

In short, don't be a sucker.

END

(Please resume your reading on P. 38.)

ARMY'S SURPLUS STOCKS

(CONTINUED FROM PAGE 45)

Gen. A. B. Quinton, Chief of the Detroit Ordnance District; and Brig. Gen. John K. Christmas, Deputy Chief of the Office, Chief of Ordnance—Detroit, were surprised to hear Senator Homer Ferguson, Republican of Michigan state that committee investigators had uncovered a stockpile of one specific part in a southern depot which, based on requisitions for the past several months, would approximate a supply sufficient to last 200 years. Committee Counsel Rudolph Halley later told COMMERCIAL CAR JOURNAL that such investigations would be continued, and while other instances of over-buying had already been uncovered a public report of the findings will not be made until the investigations have been completed.

Under the questioning of Senator James M. Mead, Democrat of New York, committee chairman, General Christmas admitted that surpluses are not being declared as rapidly as possible, but stated that this was due to a desire on the part of the Army to have sufficient quantities on hand at all times to meet any emergencies. The Ordnance officers claimed that any over-buying was largely due to inexperience in handling large-scale procurements. It is the committee's contention that such inexperience should have been overcome by this time.

Pushing the point that parts were being bought in excessive quantities, Assistant Committee Counsel George Meader revealed that the Army had procured 2,198,983 combat and transport vehicles up to Jan. 31, 1944 and had increased this total to 2,698,594

(TURN TO PAGE 150, PLEASE)



LIST PRICE, \$14.00
See Coupon for Dealer Cost

GUNK H-S

(HYDRO-SEALED
CARBON GUM
DIGESTIVE SOLVENT)

Guaranteed to exceed the performance requirements of most recent army, navy and air force degreasing and decarbonizing compound specifications.

Available in handy steel kit containing steel dunking screen and dryer basket. Rinses easily with dry cleaning solvents or water. The only complete decarbonizing process in package form.

ALSO CLEANS and DECARBONIZES:

Spark Plugs . . . Motor Blocks . . . Valves . . . Pistons . . . Diesel Fuel Injectors . . . Airplane Engine Parts . . . Aluminum Pistons . . . Anti-Aircraft Guns . . . Heat Transfer Units . . . Oil Coolers



FOR CARBON CLEANING—SPECIFY... **IMMEDIATE DELIVERY**
GUNK H-S HYDRO-SEALED CARBON DIGESTIVE SOLVENT
5 Gallons or a Tank Car
CURRAN CORPORATION
Mfg. Chemists
MALDEN MASS.

IF YOUR JOBBER DOES NOT STOCK . . . USE COUPON

Not in stock at my Jobber . . . attached to my business letterhead is my check, or M.O., on the condition that you ship me a 5-gallon size GUNK H. S. at dealer's net cost, \$9.90—(add 10% west of the Mississippi) by FAST PREPAID RAILWAY EXPRESS.

Name
Address



Safety after dark

Romantic old side-wheelers, that plied the Mississippi before the Civil War, signaled their turns in deep, frog-like notes. Cargoes of slaves, cotton, gamblers, and hoop-skirted beauties were protected from collisions through a system of whistle signals.

Calling your turns on today's crowded highways is an important safety measure, too. Many states now have laws requiring turn-

signal equipment on all commercial vehicles. Arrow Turn-Signals are not only designed to meet these state requirements, but they provide exceptional visibility for both day and night operation. They are built to withstand hard usage, and deliver long, trouble-free service. See your jobber or write direct for catalog. Arrow Safety Device Company, Mt. Holly, New Jersey.

FOR SAFETY

ARROW

AFTER DARK



ARMY'S SURPLUS STOCKS

(CONTINUED FROM PAGE 148)

vehicles as of July 31, 1944. During 1943 the Army had purchased \$1,374,750,000 worth of concurrent and replacement parts and expects to purchase about \$1,160,000,000 worth during 1944.

He further pointed out that in the peak civilian year a little more than \$600,000,000 (Editor's Note: A check

showed the actual figure to be \$718,012,295) was spent for replacement parts to service approximately 30,000,000 civilian vehicles then in operation. Proportionately this results in about 30 times more parts being bought by the Army per vehicle than were consumed by the civilian population in the peak peacetime year, according to Mr. Meader.

General Boatwright attempting to refute Mr. Meader's claim said that about 40 per cent of all Army vehicles are sent overseas under Lend-

Lease and a year's supply of parts accompanies each vehicle. Additional parts are requisitioned later by the respective Lend-Lease recipients. Vehicles sent overseas for use by the Army are not equipped with a year's supply of replacement parts.

General Boatwright then presented the following figures which were brought out to uphold the Army's position on overbuying:

	Army Ordnance	Transport	Vehicles
			Percentage of Vehicle Value
	Total Vehicle Value	Parts Purchased	In Parts Purchased
1943	\$3,086,000,000	\$528,000,000	17
	Civilian Car, Bus and Truck		
1941	\$8,637,000,000	\$718,000,000	8

He said the reasons for the Army purchasing twice as many parts as required for civilian upkeep, rather than 30 times as many as was con-

HERBRAND TOOLS save time and labor



Are YOU looking for short-cuts and solutions to problems brought about because of the manpower shortage and the need for turning out more work in less time . . . If so—keep in mind that Herbrand Quality Tools *save time and labor*.

Advanced design and excellence of quality cause experienced mechanics to prefer Herbrand Tools...grip, balance, shape—all combine to cause these tools to raise the efficiency of the worker to the highest degree . . . The present-day demand for these popular tools is great. Should there be an occasion when you are unable to get immediate delivery on certain numbers in our complete line—please understand that war needs come first. Herbrand Quality Tools are worth waiting for.

Sold through better jobbers everywhere

THE HERBRAND CORPORATION • Fremont, Ohio

Drop-Forged Tools Since 1881

SOME SENATORIAL CHARGES

The Senate War Investigating Committee is making a detailed study of Army buying practices and will make a public report of its findings. Meanwhile at a hearing attended by Ordnance officers, the committee heard Senator Ferguson of Michigan charge that a stockpile of one specific part had been uncovered in a Southern Depot which, based on requisitions for the past several months, would approximate a supply sufficient to last 200 years.

The Committee's counsel charged that about 30 times more parts were being bought by the Army per vehicle than by civilians during the peak peacetime year.

Counsel also charged that about 40 per cent of all Army vehicles are sent overseas under Lend-Lease and that a year's supply of parts accompanies each vehicle.

tended by the committee, are as follows:

1. Army off-highway operations in different theaters of war under all-weather conditions.
2. Field maintenance with limited tools, time and skill.
3. Parts stockage requirements for 1000 Army supply and maintenance depots with important operational differences.
4. Procurement of requirements many months in advance because of

(TURN TO PAGE 154, PLEASE)

MEANS EVERYTHING

NOTHING about a tire can be more important than who makes it — and who sells it.

Men, as well as methods, leave their imprint of excellence on a product. Selling, too, is mostly a matter of men. In these unwritten "human" specifications, you find the only valid guarantee of satisfaction.

The foundation of Mansfield's claim to tires of unsurpassed quality rests on the leadership and training, the experience, skill and know-how of the men who build them.

Mansfield's faith in the future is that a product honestly made always can be sold most efficiently, and with greatest satisfaction, through free and independent jobber distribution channels.

* * * * *

Mansfield's jobbers are more than distributors of merchandise. They, also, are arbiters of quality...value...price. By independent choice and through deserved confidence of jobbers, dealers and users, tires made by Mansfield have earned their enviable reputation for service and dependability.

THE MANSFIELD TIRE & RUBBER CO. • MANSFIELD, OHIO



Following Well Known Tires—
RICHLAND, UNITED

WHOLESALE EXCLUSIVELY

ARMY'S SURPLUS STOCKS

(CONTINUED FROM PAGE 150)

manpower shortages, packing and transportation difficulties, etc.

General Christmas, who had recently completed a tour of overseas Ordnance installations, said that he found no general shortage of parts overseas, but that there are specific shortages because of transportation and distribution difficulties and the fact that the country is scraping the

bottom of the barrel in regard to some types of parts, particularly those requiring castings.

He also said that he found no waste for parts and that vehicles were not sent back from overseas for parts failure. They are repaired by the Army and the cost is charged back to the manufacturer. In addition, manufacturers have been called upon in the field to repair vehicles at their own expense, under the one year or 4000-mile warranty generally given to the Army.

General Boatwright in outlining Army parts procurement policy told the committee, "that the policy with respect to procurement of spare parts for automotive equipment is:

"a. Purchase of all replenishments and concurrent requirements of tires, tubes, batteries, tire chains and electrolite from their respective manufacturers.

"b. Purchase of replenishment requirements of all standard parts (so-called parts common) from standard parts manufacturers.

"c. Purchase of replenishment requirements of certain highly interchangeable parts as well as certain major unit assemblies from unit manufacturers (vehicle manufacturers' sources of original equipment) to the extent practicable under our supply and procurement systems.

"d. Purchase of all other spare parts requirements including all concurrent spare parts requirements, except tires, tubes, batteries, tire chains and electrolite from vehicle manufacturers."

The General told the committee that reliance upon vehicle manufacturers for spare parts to service vehicles produced by them has been fundamental War Department policy since 1916 up to the present time. However, he pointed out that over the years there has been a gradual lessening of this reliance upon vehicle manufacturers and it is less significant today than at any prior time. From Dec. 31, 1943 to April 1, 1944, Army purchases from parts manufacturers were about \$4,000,000. For the seven months, April to October, this amount had increased to \$69,000,000, about 59 per cent in dollar volume of replacement parts. The Army estimates that of the 41 per cent purchased from vehicle manufacturers approximately one-half were parts peculiar to such manufacturers.

In December, 1941, when the war vehicle production program was initiated, according to General Boatwright, it required the production of an astronomical number of vehicles, with full sets of concurrent parts sufficient for one year of maintenance in the field. Because of this situation Army Ordnance departed from established policy in June, 1942, and small suppliers, unit manufacturers, and other sources were utilized.

While some parts were obtained to

(TURN TO PAGE 157, PLEASE)

demanded BY MAINTENANCE MEN!



MEN responsible for the efficiency, long-life and economical operation of war-vital motor transportation never relax their fight against sludge, gum, acid and corrosion.

LOOSITE and **SILOO** are valiant allies in the never-ceasing battle to keep trucks and buses rolling. **LOOSITE** swiftly, safely and economically cleans out the entire lubrication system. Once clean — **SILOO**, added to

fresh crankcase oil, functions continuously to prevent further formation of dangerous petroleum residues. Engines operate at maximum efficiency, oil reaches every vital part — thus motor life is prolonged, costly repairs and lay-ups are avoided.

Keep 'em rolling with **LOOSITE** and **SILOO**! Your dealer or jobber has them for you.

PETROLEUM SOLVENTS CORP., Gen. Off., 331 Madison Ave., New York 17, N. Y.

For sale by leading jobbers everywhere, and the White Motor Company branches and distributors.

ARMY'S SURPLUS STOCKS

(CONTINUED FROM PAGE 154)

case the critical situation, the General said, the following were some of the disappointing results which occurred:

1. Many of the new sources were unaccustomed to doing business under government regulations.

2. During this emergency period parts had to be accepted with little or no inspection with the result that frequently they were placed in the supply system under new and strange part numbers or, in some instances, without numbers and proper identification.

3. Some unit parts manufacturers did not have a large enough order for a mill run of steel and found that the desired amount and quality of steel could not be located in warehouse stocks after acceptance of contracts.

4. Failures of quality and unsatisfactory packaging.

Shortly after the Ordnance Department took over the responsibility of motor transport procurement and supply this temporary arrangement was discontinued.

General Boatwright maintained that Army Ordnance places strong reliance upon vehicle manufacturers for spare parts for the following reasons:

1. Warranty and services given by the large manufacturers.

2. Inspection systems which are provided that could not be duplicated by the government under present conditions.

3. Vehicle manufacturers have proved time and again that they can furnish urgently needed parts orders when the parts manufacturers themselves have been unwilling to contract for such deliveries.

4. Experience has shown that the export packaging of parts can be accomplished by relatively few manufacturers, so any appreciable extension of direct buying would cause a shuffling of boxing facilities and require the establishment of additional packaging plants, even though all parts are now being boxed with facilities in existence.

5. Direct procurement from spare parts manufacturers requires the assumption by the Ordnance Department of numerous services and responsibilities which the vehicle manufacturers perform to a great extent at present.

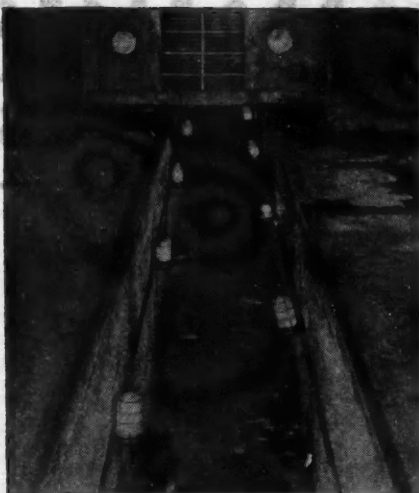
6. Every Government contract currently executed presents the possibility of another termination. The Army has based its plans for a speedy reconversion upon negotiated lump settlement's with prime contractors, who will in turn assume the tremendous task of quickly settling a multitude of subcontractor's claims. To the extent that more parts manufacturers are made prime contractors instead of subcontractors, the termination job will be complicated and the administrative burden will be

magnified, as will be the need for additional personnel.

In closing his case for Army Ordnance purchases of spare parts from vehicle manufacturers rather than spare parts manufacturers, General Boatwright said:

"It is true that parts bought from vehicle manufacturers might be bought for less from parts manufacturers, but such additional costs represent payment for spare parts ser-

(TURN TO PAGE 158, PLEASE)



BEFORE



AFTER

USE SOL-SPEEDI-DRI in GREASE PITS...

YOU CAN SAVE hours of back-breaking labor as well as time, manpower, and equipment by cleaning the oil and grease from all working areas, pits, lifts, and racks with SOL-SPEEDI-DRI. There's nothing to do but spread it on, let it absorb the mess, and then sweep it up with a stiff broom. You'll prevent slipping accidents, lower maintenance costs, and increase shop efficiency. SOL-SPEEDI-DRI will reduce the fire hazard of grease deposits and oil-soaked floors too, for it will not readily burn even when completely oil-soaked. This is something you really should get on to today. Stocked by jobbers and warehoused in leading cities. Write for details.

SUPPLIERS: East — Refiners Lubricating Co., New York 1, New York.

Midwest & South — Waverly Petroleum Products Co., Philadelphia 6, Pa.

West Coast — Waverly Petroleum Products Co., Russ Bldg., San Francisco 4, Calif.



ARMY'S SURPLUS STOCKS

(CONTINUED FROM PAGE 157)

vices rendered. Such lesser prices do not take into account the value of the services obtained under buying methods actually followed, nor the cost of tremendously increased Government overhead that has been averted.

"Undoubtedly out of the 300,000 to 500,000 parts items that have been procured in the war period it would not be difficult to show cases in which prices were in fact paid for the par-

ticular item out of all proportion to the services rendered in the procurement and handling by the vehicle manufacturers. On the other hand there are many cases to be found where such parts have been delivered by the vehicle manufacturer at a loss. Studies made on this subject indicate, however, that taken by and large, less net profits accrue to the vehicle manufacturer on their war time orders than on similar peace business.

S.Q.* PROTECTS YOUR DRIVERS.. PRESERVES YOUR EQUIPMENT..

- ✓ Exclusive asbestos-friction compound, molded on wire-grid back.
- ✓ Constant high co-efficient of friction throughout longer life.
- ✓ Astonishing freedom from adjustment.
- ✓ Precision machined for quick installation.
- ✓ Quick stops... but smooth... and with softer pedal.
- ✓ Most efficient braking performance under all conditions of service.



"Bear in Mind"

Grizzly Brake Lining casts all doubts aside... provides every single essential quality (see chart) that means EXTRA MARGIN of safety for your drivers and your equipment.

Fleet owners everywhere acclaim Grizzly's astonishing freedom from adjustment, its longer life... insist on Grizzly Brake Lining for every reline job.

Dispel all doubts... install Grizzly, "the finest product in the brake lining industry". It rates 100% in * Safety Quotient, protects your drivers, preserves your equipment!

A distributor near you has a complete stock of Grizzly Brake Linings. Write us for his name. Grizzly Manufacturing Company, Paulding, Ohio.

GRIZZLY

REG. U. S. PAT. OFF.

BRAKE LINING

"The system in use under present policies is believed to be the most economical and efficient that can be followed; it most certainly is the only system that would have accomplished the Ordnance Department's mission."

END

(Please resume your reading on P. 46)

A REPAIR SHOP 150 MILES LONG

(CONTINUED FROM PAGE 41)

any typical call but, according to Lewis, the rolling repair shop has successfully completed, on the road, such major jobs as complete motor overhaul, and transmission and rear end changes. There are 159 units operating out of the Portland terminal and "No. 742" is on the go the better part of each day and night.

Two major economies are involved in CF's rolling repair shop program. The first, and most important in these wartime days of prompt freight deliveries, is time saving. Instead of the delay occasioned by towing the big "Freightliners" into Portland for repairs, repairing them, and then sending them out again, the light, fast repair truck speeds out to make the repair, and sends the truck on its schedule-making way.

Then there is the cost of towing a truck and trailer which, states Lewis, is well-nigh prohibitive.

CF is looking ahead to postwar days. As new trucks are designed, and when new shop equipment developments occur, Consolidated Freightways will provide its rolling repair shops with such improvements and refinements as will keep pace with the new transportation era to come.

END

(Please resume your reading on P. 42)

Aircraft Accessories Corp. Now Aireon Mfg. Corp.

Stockholders of Aircraft Accessories Corp. voted on Dec. 15th to change the name of the company to Aireon Manufacturing Corporation.

Aireon contemplates continued substantial production of aircraft and electronic equipment and has developed a number of new products which it is prepared to manufacture and market as soon as materials are released.

FOR *UTMOST* RELIABILITY IN THE HEART OF THE FUEL SYSTEM



AVAILABLE FROM THE
AC WHOLESALER

Your AC Fuel Pumps give you such dependable service and long life because *highest quality is built in*, from blueprints to finished products. There is one sure way to protect that reliability and durability,—insist upon AC pumps and parts.

FOR REPLACEMENT—install new AC Fuel Pumps or Authorized Factory Rebuilt AC Fuel Pumps.

FOR REPAIRS—use AC Diaphragm or Parts Kits.

QUALITY FEATURES

- Careful control of pressure and flow assuring correct fuel supply.
- Accurate hardening, precision machining of parts essential to long life.
- Accurate control of spring tensions and temper.
- High, and controlled, pin hardness.
- 4-layer patented-impregnation diaphragms of special airplane cloth.
- Carefully finished rocker arm pads, located to center on cam.
- Split-hair rocker arm clearance and control of pad hardness.
- Uniform pull rod hardness at pin holes.

AC FUEL PUMPS

SEND FOR AC SHOP MANUALS

Field Service Department, AC Spark Plug Division, G. M. Corporation
910 Union Industrial Building, Flint, 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop

Manuals checked:

- | | |
|--|--|
| <input type="checkbox"/> How to Service Spark Plugs | <input type="checkbox"/> HOW TO SERVICE FUEL PUMPS |
| <input type="checkbox"/> How to Service Spark Plug Cleaner | <input type="checkbox"/> How to Service Air Cleaners |
| <input type="checkbox"/> How to Service Oil Filters | <input type="checkbox"/> How to Service Speedometers |
| <input type="checkbox"/> How to Service Ammeters and other Instruments | CCJ-1 |

NAME _____

FIRM _____

STREET ADDRESS _____

CITY _____

STATE _____

BUY WAR BONDS—BRING VICTORY QUICKER

TIPS ON TRUCKS, TRAILERS AND RADIO

(CONTINUED FROM PAGE 54)

In some detail he explained reasons why manufacturers will be unable to place new models on the market until after the war's end and discussed also probable features which will be included when they come.

"If you need trucks and your operation is essential and you can get an ODT release, buy now," he ad-

vised. "Also do a little forward thinking and place truck orders now for early delivery after Germany is licked. Don't wait for the super-duper dream truck, because, in my personal opinion it will not be available until at least a couple of years after the lights go on again in Europe."

As long as present state barriers in the form of non-uniformity in size and weight standards exist among the states, Mr. Lautzenhiser declared, truck designers cannot take

advantage of wartime experiences to "really fit the truck to the job."

V. M. Drew, director of research for Fruehauf Trailer Co., followed on the program and cited Commerce department figures which foresee a post-war motor truck haulage volume of 80 billion ton-miles within the next few years, a volume which is twice that of 1939. This would mean, he said, that by 1947 or 1948 there would be from 5½ to 6 million trucks in daily service on the highways.

"If that proves correct," said Mr. Drew, "motor haulage, as a result of its performance before and during the war, has certainly established itself on a basis more indispensable than ever before."

"We are inclined to believe," Drew continued, "that there is going to be a wider public acceptance of motor trucks and that legislation affecting the industry will be more favorable than heretofore. For one thing, the demand for motor truck services exists. There is little evidence that the heavy war traffic has caused failure of highway pavements. And when the local boys come home from the front, they will have a keener sense of transportation requirements, especially from the motor truck standpoint. This influence will help support motor haulage as never before."

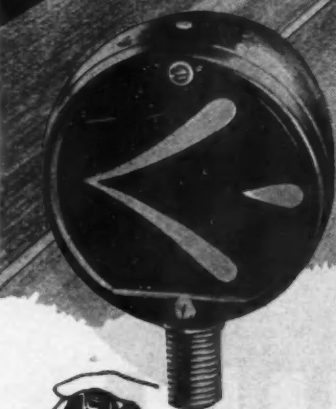
The "super-duper" trailer, Mr. Drew warned "will not emerge suddenly, to everyone's surprise." Improvements as developed will be added to present models and will not be held back, he promised, and suggested that operators should "take care of your requirements for new equipment as your judgment may indicate you should proceed."

In view of the development and expansion of the frozen food industry, the time is at hand, he asserted, "when the trailer men should approach transportation men in that field with a complete, built-in mechanical refrigerating unit." This, he said, involves possible structural changes "to bring the required insulation of the installation to its highest efficiency." Using the vacuum bottle with its outer shell for protection as a suggestive illustration, he said, the result on the trailer might be two component parts, one for protection and one for load carrying.

Asked from the floor if his company has any plans for standardizing



YOURS FOR SAFETY
IN 1945



Teleoptic Finger-tip control switch on gear shift lever.



Teleoptic Instrument panel control switch with, or without, pilot light



Teleoptic Steering column control switch.

PROTECT MANPOWER AND EQUIPMENT

They are precious today!
Every Motor Vehicle Needs the
Safety of

TELEOPTIC DIRECTIONAL SIGNALS

1. Can be seen from all angles, DAY or NIGHT, at 125 feet!
2. Are approved by ALL STATES requiring directional lights.
3. Are designed to stress Protection rather than price.
4. Guaranteed against all defects—Integral construction—pedestals screw on with less chance of shear.
5. Ground glass lenses.
6. 180° visibility.
7. Easily installed.
8. Finger tip switch control—3 types available for extra convenience.
9. Made with the same accuracy and perfection we are now putting into bomb fuses and other ordnance items for the war.

On the
Highway it's

Teleoptic

In the Air it's

Sel-air

THE TELEOPTIC CO.

1245 MOUND AVENUE

RACINE, WISCONSIN

PORUS-KROME

a fish story..but true



Part of New England Fleet at Boston Fish Pier

80% of the New England fishing fleet boats have Lister-Blackstone auxiliary Diesel engines. This rugged engine is made still more reliable by having PORUS-KROME liners in its cylinders . . . a standard specification for every Lister-Blackstone engine.

PORUS-KROME resists both corrosion and abrasion and multiplies cylinder life from 4 to

20 times. Its porosity assures better lubrication, too. These characteristics are especially needed where the engines "run cold" as they do in fishing boats . . . and in other engines, too, which are used in cold weather.

Whether you build engines or use them, be sure that PORUS-KROME is on the cylinder walls. Write for full information.

PORUS - KROME

Good for the Life of your Engines



U. S. PATENTS 2,048,578 AND 2,314,604

VAN DER HORST CORPORATION OF AMERICA

OLEAN • NEW YORK
CLEVELAND 11 • OHIO

AN AFFILIATE OF DRESSER INDUSTRIES

TIPS ON TRUCKS, TRAILERS AND RADIO

(CONTINUED FROM PAGE 160)

equipment to facilitate interchange, Mr. Drew said that in the postwar period Fruehauf will offer a standardized model, adaptable for use "all over the country." Built-to-order trailers will be available as before.

Radio for use in motor truck operations has its limitations, D. C. Noble, electronics engineer with Gal-

vin Mfg. Co., Chicago, told the conference in a discussion of possibilities for utilizing two-way radio communication by the industry. Mr. Noble, who is chairman of Panel 13, Radio Planning Board, Federal Communications Commission, has been advising the American Trucking Associations in their efforts to have certain low frequency wave bands allotted by the FCC for use by the trucking industry.

The public understanding of radio communications, Mr. Noble said, is

based on familiarity with what broadcasting stations of 50,000 watts can do. The walkie-talkie, with one-third of a watt power, which is familiar from its military use, is designed for transmitting to a maximum distance of only one mile "under very favorable conditions." Obviously, he added, this handy walkie-talkie could not be used for general dispatching operations.

Even with 250 watt equipment, for police, fire and other emergency civilian use, he continued, unlimited range cannot be attained. Conservatively considered, such equipment for two-way use might reach 40 miles, but hardly hundreds. Under certain conditions ranges of from 300 to 1000 miles have been reported, but, due to natural causes, whose scientific nature he explained, those conditions are not "dependable." In Iowa, where state police have a high transmitting tower, a range of 100 to 150 miles is obtained, while Michigan state police require 48 transmitting stations to cover the state, he said.

If truck operators install a radio system, Noble said, FCC rules will require every driver on a truck equipped with a radio set, to take out a transmitter's license, for which severe tests must be passed. Since adjustment of the frequency to avoid interference with other wave bands is a critical factor, the transmitting driver is not permitted to adjust or service the set, and another licensed operator would be required for this.

He related some of his own experiences with company equipment in and around Chicago, and told also of use made of two-way radio by Chicago and St. Louis traction companies on repair trucks. It is "nonsense," he declared, to expect to be able to talk back and forth over a range of "20 to 30 or 40 miles."

Even the army's most popular models, he said, are built for only a 3-mile range. Under favorable conditions, however, communication has been established between mobile units from 5 to 15 miles apart, he added.

Applications for assignment of frequency bands are $2\frac{1}{2}$ to 3 times the number of channels available, Noble stated, an indication that "it would be utterly impossible for every truck operator to get a frequency for his private use." Summing up his ex-

(TURN TO PAGE 164, PLEASE)

For Over 22 Years a National Standard for Better Brake Lining . . . and for Better Service.

You'll strike real "pay dirt" when you stock and use MILEY BLACK GOLD. You'll discover brake lining quality that has been perfected for wartime requirements to new and higher standards of smooth braking power and longer wear.

It's wise foresight to carry a stock of MILEY Brake Shoes and Brake Lining Sets. Ease that manpower shortage by using MILEY Exchange Service on Ready-Lined Shoes—Available with either regular or oversize linings.

A Nationally Advertised Line

THE L. J. MILEY COMPANY, Inc.

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Plants in Chicago, Ill. and North Manchester, Ind.

Simplicity...

GEMMER STEERING

Gemmer Steering Gear design embodies that simplicity which is the essence of high quality design. There are only a few parts—nothing to get out of order or require frequent adjustment.

Such simplicity makes for exceptional sturdiness without excess weight or bulk—makes for compactness—makes for ease of installation. Weight saving is accomplished without sacrifice of overall capacity or steering arm angularity. Husky steel forgings provide abundant strength, durability—ample safety factor. Internal stresses are low.

Additional essential qualities contributing to the worth of Gemmer Steering are found in:

TEETH THAT ROLL—No sliding contacts between gear teeth. The hourglass worm bears on *teeth that roll*—providing highest efficiency—smooth, easy transfer of power.

STABILITY—Inherent design banishes "lost motion", and reduces wear to the least possible minimum. Steering is always firm, responsive, positive, with absence of rubbery feeling or wander.

ANTI-FRICTION BEARINGS—at all critical points—particularly important to efficiency where motion is relatively slow.

GEMMER STEERING demonstrated its worth in all types of peacetime automotive vehicles from lightest passenger cars to heaviest buses, trucks, roadbuilding machinery, and agricultural tractors. An equally commendable job is being accomplished on wide variety of vehicles and boats for our armed forces.

GEMMER—PIONEER OF HIGH EFFICIENCY STEERING

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6400 MT. ELLIOTT AVE.
DETROIT 11, MICH.

MARLIN - ROCKWELL CORPORATION

Executive Offices: JAMESTOWN, N. Y.

(CONTINUED FROM PAGE 162)

"I do not believe that truck transportation has anything to fear from air cargo," asserted Ted V. Rodgers, president of American Trucking Associations, in an address on "What the Future Holds For Our Industry." Freight, he pointed out, must move on the ground, both before and after it moves by air. Thus, he said, "development of air cargo is more likely to add to than take away from transportation by truck."

He commended highly the spirit of cooperation shown toward the truckers by leaders in air cargo development. This, he said, is in marked contrast to the continued refusal of the railroads to cooperate with motor carriers.

Further light on the teamwork between air and motor carriers was supplied by Chester G. Moore, secretary of ATA and chairman of the board of Central Motor Freight Association, Chicago.

While no one knows to what extent air cargo may go, still it may be "tremendous," Mr. Moore asserted. It would be "silly," he declared "not to go along at the start, even if there is not much business in it." By co-operating now, he suggested, motor carriers would be in position to take full advantage of the larger opportunities as they develop.

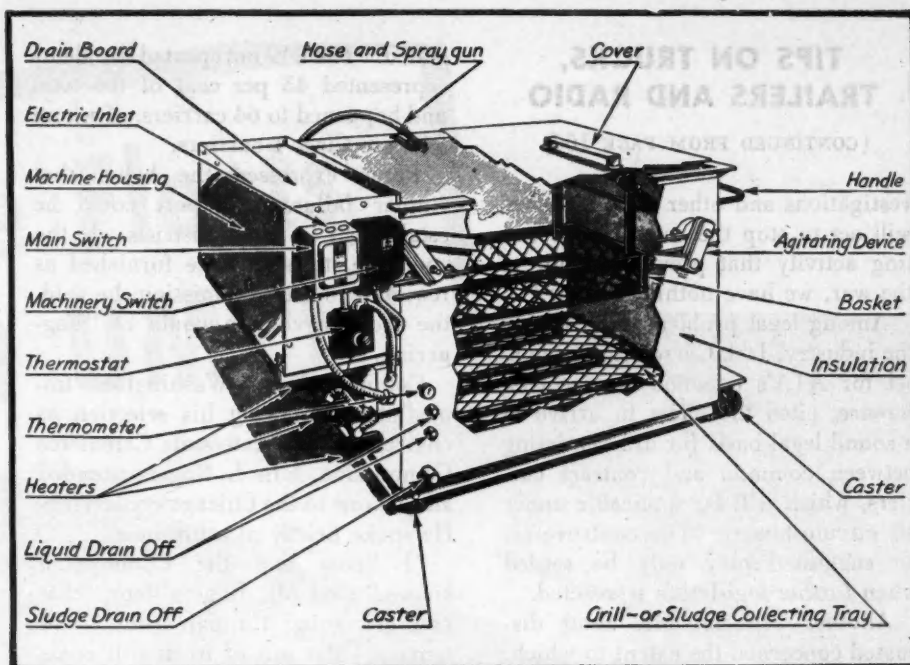
The airlines, Mr. Moore stated, have taken the same position as the trucking industry in opposition to the "integration" program of the Transportation Association of America which involves creation of a huge transportation "monopoly" controlled, as alleged, by railroad interests.

"We need the help of the air lines on this," he said. "They need ours and it should be forthcoming."

President Rodgers forecast a renewal of the railroad rate war on trucks after the end of the world conflict. He criticised the "faulty judgment" of the ICC on "destructive competition," and declared that "if the Commission, in the class rate in-

(TURN TO PAGE 230, PLEASE)

**Cleans Any Work
— Any Metal
with Any Cleaner**



The New Magnus Portable All-Purpose Machine

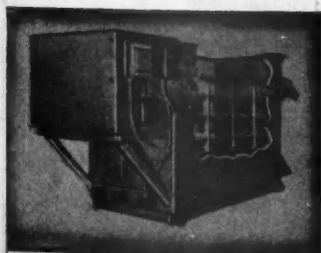
This new portable machine is made in such a wide range of capacities that a size can be selected to handle your work, no matter how large or small it may be. It can be used with any cleaner or cleaning method and hence is adapted to any metal. It is equally versatile in the many ways in which it can be set up to provide for cleaning sequences to fit your needs.

UNIQUE AGITATION

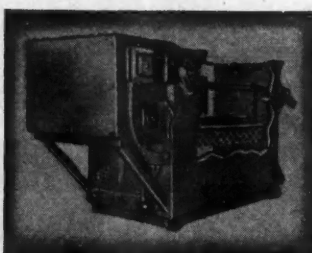
The method of agitation used on this machine insures far speedier and better cleaning. It is based on fast and repeated dipping of the work in the cleaning solution which provides an unusually thorough *swishing* contact of the solution with all parts of the work and its recesses. *Cleaning time has been cut by as much as 80% by this method of agitation.*

The price of this machine ranges from \$300 to \$800, depending on capacity and method of heating used.

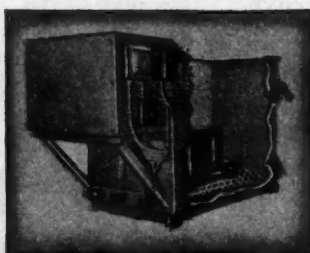
Ask for complete data folder, covering design, versatility, manifold uses and prices.



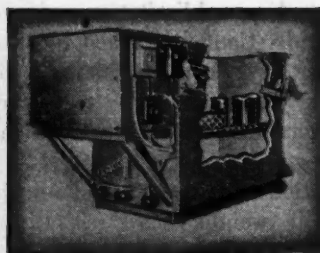
Machine without basket for soaking parts on racks or hooks.



Machine with basket for soaking parts individually or in bulk.



Machine set up for spraying parts on racks or individually.



Machine set-up for spraying parts individually or in bulk on a grille.

Magnus



MAGNUS CHEMICAL COMPANY • 38 SOUTH AVENUE • GARWOOD, N. J.

FLEET CLEANING MATERIALS

TIPS ON TRUCKS, TRAILERS AND RADIO

(CONTINUED FROM PAGE 164)

vestigations and other pending cases, will act to stop the ruinous rate cutting activity that prevailed prior to the war, we have nothing to fear."

Among legal problems confronting the industry, Jack Garrett Scott, counsel for ATA's common carrier conference, cited the effort to arrive at a sound legal basis for differentiating between common and contract carriers, which will be applicable under all circumstances. The controversy, he suggested may only be settled when further legislation is enacted.

Another problem Mr. Scott discussed concerned the extent to which, "if at all," the railroads should be permitted to engage in over-the-road motor carrier operations and, if so, under what limitations to carry out the intent of the legislation. The common carrier conference, he said, proposes to determine the limitations and to see that railroad motor carriers comply with them.

In this connection President Rodgers cited interesting figures showing that the railroads operate 92,000 trucks and only 42,000 locomotives.

Since trucking operations are so largely conducted at night, Earl Cannon, vice president of ATA and industry representative on the Trucking Commission to the War Labor Board, foresees a future problem in WLB's recent ruling on the "night differential" in the steel mill case. Also, soon to face truck operators, he said, will be the "bonus" problem, arising from union demands for additional driver compensation because of the 35 m.p.h. speed limitation order of ODT.

Mr. Cannon warned that the practice of seeking permits for voluntary pay raises in order to attract additional manpower is one which "labor is going to use against you." Applications, he advised, "should be carefully weighed and with the utmost sincerity."

Motor carriers are failing to turn in reports of reportable accidents as required, Frank Purse, Chicago district director of the ICC Bureau of Motor Carriers, charged. Among 179 carriers, covered by a spot survey of nine months of operations, there were 581 reportable accidents, on which only 332 reports were made, he

stated. The 249 unreported accidents represented 43 per cent of the total and happened to 64 carriers, of whom 34 were Class 1 carriers.

Purse expressed the belief that similar failure to report could be established in other districts. If the complete statistics were furnished as required to the Commission, he said, the accident volume would be "staggering."

Coming from Washington immediately following his selection as chairman of the Interstate Commerce Commission, John L. Rogers attended all sessions of the Chicago conference. He spoke briefly at a luncheon.

"I know and the Commission knows," said Mr. Rogers here, "that you are going through your Gethsemane. But out of it all will come a finer, better trucking industry than before. The war demand has publicized the importance of your services in a way that will stand you in good stead. Hold together. Have faith in your industry and your leaders and you will emerge in a better position in the national transportation system, better able to do what the nation expects of you."

B. D. Davidson of Davidson Transfer & Storage Co., Baltimore, Md., was chairman of the meeting's general sessions. Panel group chairmen included Harry F. Chaddick, of Standard Freight Lines, Chicago; Barney Cushman, Cushman Motor

Delivery, Chicago; Henry M. Sell, Keeshin Motor Express, Chicago, and Alex Scherer, Scherer Freight Lines, Ottawa, Ill.

END

(Please resume your reading on P. 55)

Automotive Council Applauds National Production Policy

George Romney, managing director of the Automotive Council for War Production, states that the national policy announced by Mr. Krug and concurred in by WMC puts the relative importance of the wartime use of our productive facilities and energies in their correct order:

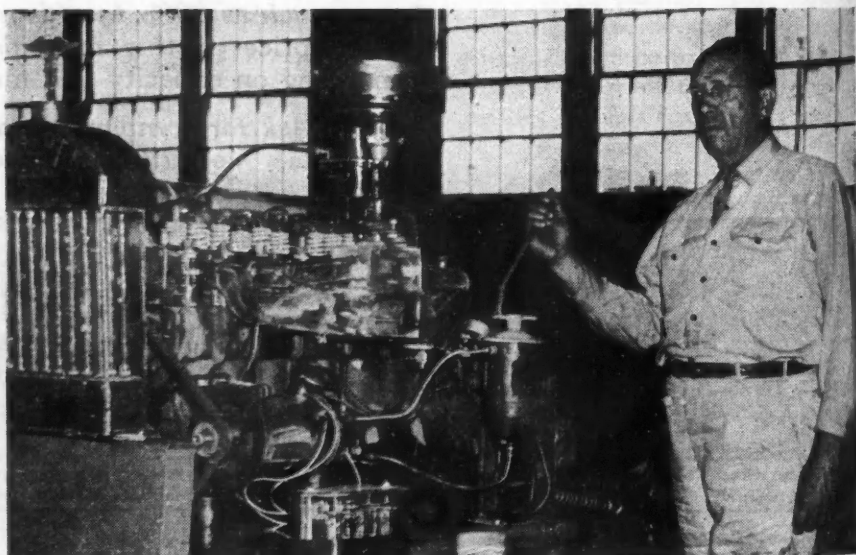
First, production of the things our boys need;

Second, maintenance of existing essential civilian production of things actually needed by the home front;

Third, to the extent it will not interfere with war production, the completion of pre-reconversion work;

Fourth, expansion and resumption of civilian production which does not interfere with war production.

"This is a good start at putting major programs in their proper order," Mr. Romney said. "Its complete adoption, plus good administration and wholehearted effort on the part of all, will hasten victory and insure prompt and speedy reconversion afterwards."



Mechanism of the "Harrismobile" is explained by its constructor, William F. Harris, a civilian instructor in the Motor Transport Course at Camp Barkley, Tex. The model is constructed so that nearly every working part is exposed to full view. The engine and radiator are enclosed in transparent plexi-glass, and other parts of the chassis are cut away and covered with the plastic material. Chief value of the model lies in the fact that students can witness the ignition, cooling and lubricating systems in action

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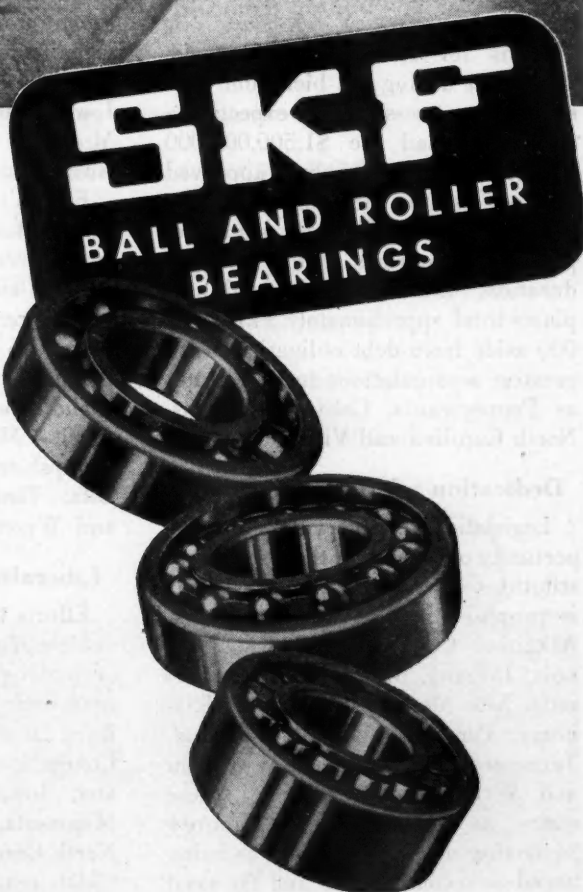


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Legislative Outlook for '45 in 44 States

Major attention to be given highway development, protection of highway funds, liberalized sizes and weights, reciprocity

FISCAL arrangements for post-war highway rehabilitation and development, constitutional dedication of state highway funds to highway purposes; threats of gasoline and other motor vehicle tax increases; broader motor vehicle reciprocity and more liberal state sizes and weights regulations feature 1945 legislative forecasts from 44 states to the National Highway Users Conference. The effect of many of these proposals would be to make permanent wartime liberalization of restrictive motor vehicle statutes.

Only four states, Kentucky, Louisiana, Mississippi and Virginia have no regular legislative sessions next year.

Plans for renewed highway development during the biennium covered by most sessions are expected to revolve around the \$1,500,000,000 Federal-aid program just approved by Congress for the first three post-war years, although some states report road programs of much longer duration. State highway fund surpluses total approximately \$450,000,000 aside from debt obligations with greatest accumulations in such states as Pennsylvania, California, Texas, North Carolina and Virginia.

Dedication of Highway Funds

Legislation to give voters the opportunity of amending their state constitutions to protect highway funds is proposed in 18 states: Alabama, Arkansas, Connecticut, Georgia, Illinois, Indiana, Maryland, Massachusetts, New Mexico, New York, Oklahoma, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Wisconsin and Wyoming. In some of these states, as well as others, statutory protection of highway funds is being urged as second choice and the need

for money to match Federal-aid highway funds is expected to be an additional argument against diversion.

Diversion itself is expected to be a major issue in eight states: Arkansas, Delaware, Illinois, New Jersey, New York, Ohio, Oklahoma and Rhode Island.

Increased Taxes Threatened

Threats of increases in gasoline tax rates are reported from 19 states: California, Colorado, Connecticut, Illinois, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, Ohio, Pennsylvania, Texas, Utah, West Virginia and Wisconsin. Reports of other motor vehicle tax increases come from 15 states: Arkansas, Colorado, Connecticut, Idaho, Illinois, Iowa, Kansas, Michigan, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma and Texas.

Efforts to increase local sharing of state motor vehicle taxes are reported from several states.

Legal authority for broader motor vehicle reciprocity agreements is expected to be sought in 17 states: Arkansas, Connecticut, Florida, Idaho, Iowa, Maine, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Mexico, North Dakota, Tennessee, Texas, Wisconsin and Wyoming.

Liberalized Sizes and Weights

Efforts to gain more liberal motor vehicle sizes and weights legislation or make permanent temporary wartime remedial measures are reported from 26 states: Arkansas, Colorado, Connecticut, Florida, Illinois, Indiana, Iowa, Maine, Massachusetts, Minnesota, Nebraska, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania,

South Carolina, South Dakota, Tennessee, Texas, Vermont, West Virginia, Wisconsin and Wyoming.

Other highway user matters expected to be prominent in some state legislatures include speed limits, financial responsibility, restoration of diverted revenues to highway funds, increased regulatory control of commercial motor vehicle operators and highway safety legislation.

State-by-State Details

A detailed state-by-state list of prospective legislative issues as reported to the National Highway Users Conference follows:

ALABAMA—Anti-diversion constitutional amendment or anti-diversion statute.

ARIZONA—No important highway legislation reported.

ARKANSAS—Change in basis of registration fees—trucks and trailers; effort to increase truck and trailer license fees; effort to reduce chauffeurs license fees; diversion taxes to political sub-divisions, or through legislative authority to collect taxes; possible mileage tax on for-hire trucks; highway user recommendation of reduction in national highway bill and penalty for diversion; reference Federal-aid; highway user support of reduction of expenses to save for matching Federal-aid; anti-diversion constitutional amendment; diversion of funds to general purposes; diversion by political sub-divisions in their use of highway funds; city sharing of gasoline tax revenue; increase sizes and weights; reciprocity; financial responsibility.

CALIFORNIA—Increase state gasoline tax.

COLORADO—Increase sizes and weights; increase license fees and gasoline tax.

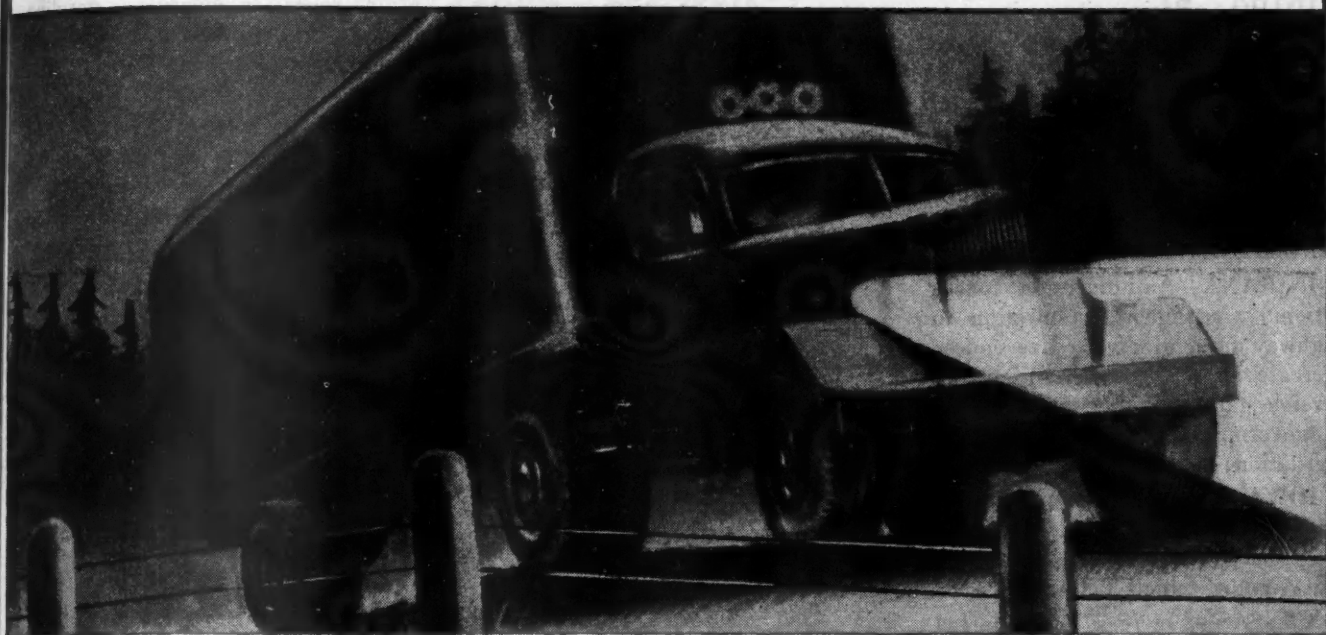
CONNECTICUT—Increase gasoline and registration taxes; anti-diversion constitutional amendment (up for passage second time); truck license fee reciprocity; increase sizes and weights; compulsory insurance; speed limits; flat \$10 registration fee on automobiles; return of \$1,000,000 loaned by State Highway Department 12 years ago.

DELAWARE—Diversion of highway funds.

FLORIDA—Increase sizes and weights; oppose continued diversion; reciprocity.

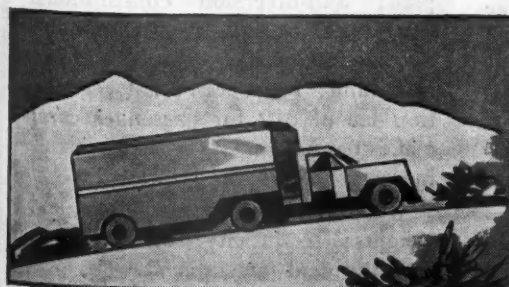
(TURN TO PAGE 234, PLEASE)

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LEGISLATIVE OUTLOOK

(CONTINUED FROM PAGE 232)

GEORGIA—Anti-diversion constitutional amendment; bond issues for highways.

IDAHO—Reciprocity; increase motor vehicle taxes.

ILLINOIS—Anti-diversion constitutional amendment; diversion; increase sizes and weights; increase tax if sizes and weights increased; increase gasoline tax; increase registration fees; retire highway and relief bonds from general fund.

INDIANA—Anti-diversion constitutional amendment; restoration to highway fund of diverted revenues; increase sizes and weights; anti-diversion statute relative to local units of government; limited access road legislation; safety legislation.

IOWA—12-year road building program; increase sizes and weights; reciprocity; increase gasoline and other motor vehicle taxes.

KANSAS—Increase gasoline tax and registration fees; ton-mile tax.

KENTUCKY—No regular session.

LOUISIANA—No regular session.

MAINE—Reciprocity; increase sizes and weights; increase rural local roads appropriations.

MARYLAND—Anti-diversion constitutional amendment or anti-diversion statute; elimination of personal property tax on motor vehicles.

MASSACHUSETTS—Anti-diversion constitutional amendment; long-range highway program; make permanent emergency gasoline tax; increase sizes and weights; repeal compulsory insurance law; financial responsibility; April 1 registration date; local sharing of state motor vehicle taxes.

MICHIGAN—Weaken or repeal reciprocity law; increase gasoline tax; increase motor vehicle taxes; appropriations from general fund for highways; allocate revenues from sales tax on motor vehicles to highways; change in distribution of state highway funds to local units.

MINNESOTA—Increase sizes and weights; reciprocity; increase gasoline tax; reduce Sunday restrictions on trucks; create motor carrier regulatory commission.

MISSISSIPPI—No regular session.

MISSOURI—Reciprocity; increase

gasoline tax or motor vehicle taxes.

MONTANA—Reciprocity; increase gasoline tax and license fees.

NEBRASKA—Anti-diversion statute; increase gasoline or motor vehicle taxes; repeal port-of-entry law and make "duration" liberalizations permanent; increase sizes and weights.

NEVADA—No important legislation reported.

NEW HAMPSHIRE—Reciprocity; increase local sharing of state motor vehicle taxes; revision and modernization of highway laws.

NEW JERSEY—Diversion of highway funds; clarify certificate of title law; legislation permitting Atlantic City to assess 25c. fee on each trip made into city by out-of-city motorists.

NEW MEXICO—Two cents gasoline tax increase; municipalities to ask authority to tax gasoline; increase motor vehicle license fees; refund highway bonds; anti-diversion constitutional amendment; increase local sharing of state motor vehicle taxes; increase sizes and weights; reciprocity; safety legislation.

NEW YORK—Anti-diversion constitutional amendment; diversion of revenue; local sharing of state motor vehicle taxes; \$10 registration fee for passenger automobiles.

NORTH CAROLINA—Repeal statute legalizing diversion in emergencies; increase sizes and weights.

NORTH DAKOTA—Increase sizes and weights; reduce gasoline tax exemptions; reciprocity; effort to restore diverted highway money to highway fund; increase user taxes.

OHIO—Changes in liquid fuel tax law; diversion; anti-diversion statute; increase gasoline tax; eliminate duplicate sales tax on motor vehicles; make permanent temporary weight increases; appropriate \$25,000,000 from general fund to highway fund; flat \$10 registration fee for passenger cars.

OKLAHOMA—Efforts to transfer from General Fund to Highway Fund 1c. of gasoline tax that has been diverted in past to General Fund; increase motor carrier taxes; municipal efforts to obtain authority to tax truck operations; anti-diversion constitutional amendment or anti-diversion statute; diversion; increase sizes and weights.

OREGON—Increase sizes and weights.

PENNSYLVANIA—Anti-diversion constitutional amendment (up for passage second time); increase gasoline tax; 5-year road building program; repeal 1c. emergency gasoline tax; make permanent temporary weight increases; repeal law prohibiting double-deck transportation of autos; refund on farm use gasoline; increase local sharing of state motor vehicle taxes.

RHODE ISLAND—Anti-diversion constitutional amendment; diversion.

SOUTH CAROLINA—Increase sizes and weights.

SOUTH DAKOTA—Substitute gasoline tax exemptions in place of refunds; decrease gasoline tax; increase sizes and weights.

TENNESSEE—Anti-diversion constitutional amendment, or anti-diversion statute; increase sizes and weights; reciprocity.

TEXAS—Limited access roads and other post-war plans; increase gasoline tax; regulation of private motor trucks; outlaw itinerant truckers; anti-diversion constitutional amendment; increase sizes and weights; reciprocity; financial responsibility; gross receipts tax on for-hire carriers; abolish gasoline tax refunds; mileage or wheel tax on for-hire vehicles; increase local sharing of state gasoline tax.

UTAH—Anti-diversion constitutional amendment; increase gasoline tax.

VERMONT—Increase sizes and weights.

VIRGINIA—No regular session.

WASHINGTON—Repay money borrowed from highway fund by general fund.

WEST VIRGINIA—Re-enact 1c. emergency gasoline tax; increase sizes and weights; repeal law prohibiting double-deck transportation of autos; increase money for local roads.

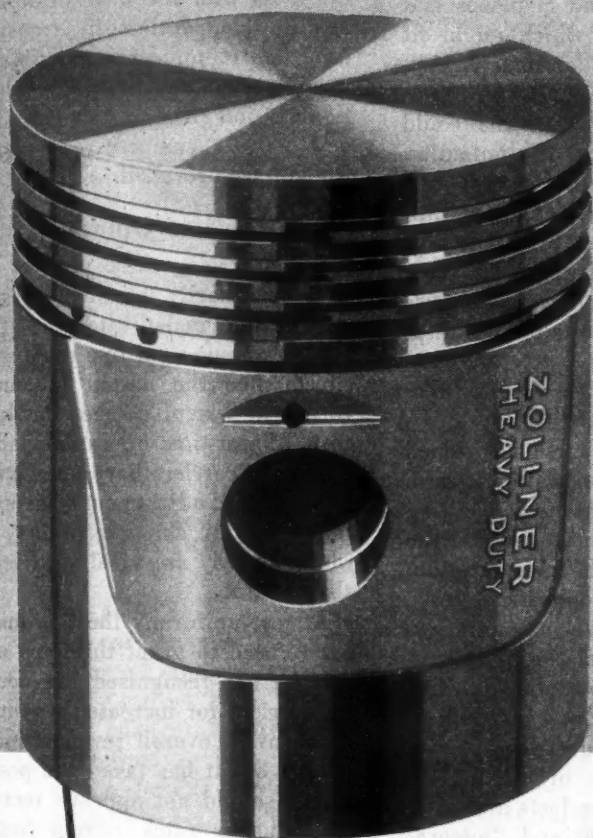
WISCONSIN—Ten-year highway plan; anti-diversion constitutional amendment or anti-diversion statute; allocate motor carrier fees to highway fund; reciprocity; flat registration fee of \$12 for passenger cars; make permanent sizes and weights increases; increase gasoline tax.

WYOMING—Increase sizes and weights; reciprocity; anti-diversion constitutional amendment.



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"Integration" Scheme Seen as Threat to Motor Carriers

by TED V. RODGERS

President, American Trucking Associations, Inc.

WITH the close of 1944 the trucking industry brings down the curtain on one of the most critical years in its history—a year in which it gamely withstood the threat to its existence of war-time shortages only to find itself harassed by monopolistic interests who would like to slice it up and serve it on a silver platter to its competitors.

In the year 1944 our industry went through its crisis. Despite shortages of virtually everything essential to truck operation—trucks, tires, fuel and manpower—the industry kept essential freight moving in record volume and is now over the hump. As things now stand there can be little doubt about the industry's ability to carry through to the end.

Thus, in a large sense, 1944 has been a year of triumph for the thousands of motor carriers throughout the country who stuck it out in the face of odds which at times appeared overwhelming. The year has been a tribute to their tenacity, ingenuity and patriotism.

It is ironic that the same year should see the launching of a bold and determined campaign to reward the trucking industry by robbing it of its independence and identity, and sacrificing it on the altar of monopoly.

For a number of years the railroads have been trying to get their fingers on competing modes of transportation, but until now they have been limited by the anti-monopoly safeguards written into our transportation laws by Congress to restrict ownership of one type of transport by another.

In 1944, the railroads and their friends came out in the open with a concerted drive to remove these safeguards preliminary to establishment of huge rail-dominated "transporta-

tion corporations" that would control trucks, boats and airplanes and any other facilities which might fit into their scheme to dominate American transportation.

Fulfillment of the scheme could mean only absorption or elimination of independent for-hire motor carriers. Among its objectives is ultimate elimination of private motor carriers such as dairies or oil companies or other producers who use their own private trucks to haul their own products.

Threat to Enterprise

Our industry, of course, has joined with the airlines, the boatlines, farm organizations and other to combatting this threat to free enterprise and the competitive system in transportation. We believe this monopolistic scheme, which its backers are attempting to foist upon the American public in the name of "transportation integration," is a distinct threat not only to the future of our industries but also to the future welfare of our nation. We believe that if the facts are made known to the public and "integration" is exposed for what it really is, the public will not tolerate restoration of transportation monopoly and stifling of new and in many ways superior methods of transportation.

The threat of "integration," like the war-time shortages and many other problems, is of vital concern to for-hire and private truck operators alike.

From the standpoint of the for-hire segment of the industry a serious problem has been created by inability to make proper adjustments in the rate level to offset rapidly rising expenses. In many instances during 1944, the Interstate Commerce Commission refused to permit adjustments proposed by individual motor carriers in an effort to alleviate their

difficulties, and the result has been a growing feeling within the industry that the Commission either does not fully understand or does not properly sympathize with the industry's financial problems.

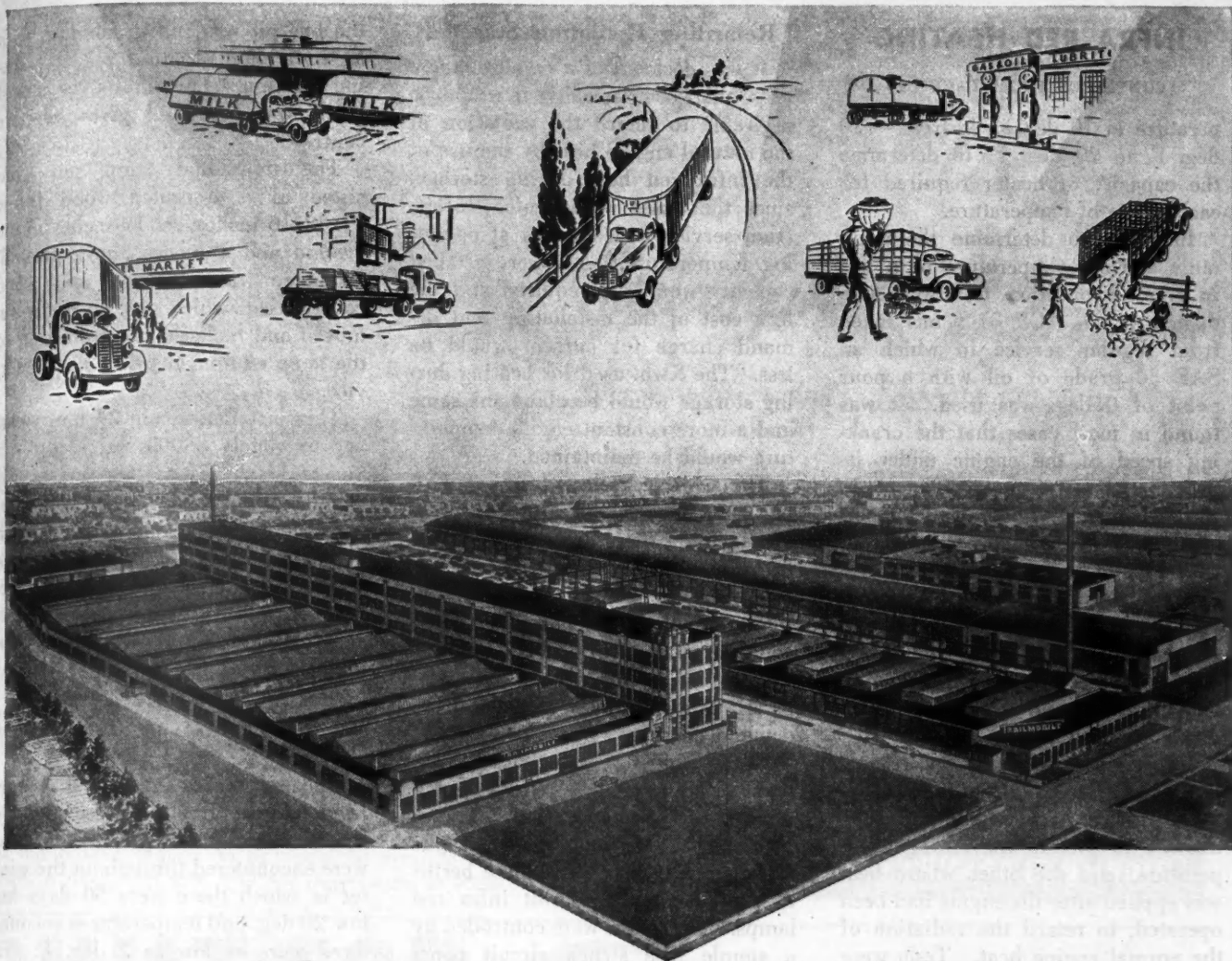
This feeling can be traced back to the years just preceding the war when railroads were permitted to conduct a ruinous rate-cutting campaign in an obvious effort to squeeze highway competitors out of the field. The Commission has been charged by Congress with the duty of fostering healthy competition in transportation, and motor carriers have found it difficult to understand why the Commission has countenanced the destructive competitive practices which have prevailed.

Costs of Operation

In any event, these pre-war practices necessarily resulted in a depressed and maladjusted motor carrier rate scale, and this scale was in effect when the nation became involved in war. To meet the higher costs of war-time operation, individual motor carriers have attempted to make upward adjustment of depressed rates without changing other rates which already are yielding a reasonable return.

Almost uniformly the Commission has refused to grant this type of relief. It has recognized the need of the carriers for increased revenue on the basis of overall revenue and expenses, but it has taken the position that it should not approve increases in particular rates without convincing data as to the cost of hauling the particular traffic in question. Since carriers are not able to develop this data at present, the industry feels that the Commission's stringent attitude is unjustified in these times of emergency, particularly since the depressed character of the rates in question is common knowledge.

If the public refuses to be hoodwinked by the super salesmen who are trying to reincarnate a monopoly in transportation, and if the Interstate Commerce Commission will take a strong stand in stamping out the destructive competitive practices which have prevailed in the past, prospects for continued growth and development of truck transportation are bright.



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INFRA RED HEATING

(CONTINUED FROM PAGE 51)

perature in 10 deg. steps from — 10 deg. F. to 20 deg. F. to determine the capacity of heater required for each range of temperature.

In order to determine the minimum starting temperature of a bus in average condition, tests were conducted on an ACF 31-S bus taken from regular service in which an SAE 30 grade of oil with a pour point of 0 deg. was used. It was found in most cases that the cranking speed of the engine under its own battery was not sufficient to start when the cylinder wall temperature was below approximately 25 deg. F. and the crankcase temperature below approximately 50 deg. It was recognized that the viscosity of oil used and the engine condition would cause variations in starting temperatures, and this was taken into consideration.

Two methods of heating were considered. One where heat was applied after the bus engine had been allowed to cool to the storage temperature, and the other where heat was applied after the engine had been operated, to retard the radiation of the normal engine heat. Tests were conducted to duplicate these conditions so as to determine the heating capacity required in each case. The conclusions were as follows:

Retarding Radiation Selected

It was decided, as a result of these tests, that, economically, it would be desirable to retard the radiation of the natural engine heat by the use of the infra red heat during storage, since the buses would enter storage from service with engines at operating temperature. A lower installed capacity would be required and the first cost of the installation and demand charge for current would be less. The Kwh. used for heating during storage would be about the same and a more constant engine temperature would be maintained.

The capacity selected was 1 Kw. per bus, since in the climate around Philadelphia there are very few days in which the temperature goes below zero. In the rare incidents of extreme weather special precautions could be taken to protect the engines. This would reduce the installed capacity to a minimum, thus reducing demand charges.

A preliminary installation was made to accommodate 27 buses maximum at the garage location. Parking berths were laid out and small pits were properly located at these berths to contain four 250 watt infra red lamps. The lamps were controlled by a simple fuse switch circuit panel board located with the main switch and meter equipment in a small 5x7x7-ft. weatherproof, wood house. The wiring from the panelboard to

the bus pit was run in conduit, with an individual circuit for each parking location. This allows the use of small size wire and gives selective control

The individual lamp pits consisted of a creosoted wood frame 27x42x16 inches, set 12 inches in the ground and 4 inches above ground. Drainage was provided and wood covers used, which can be easily removed and replaced for protection of the lamp equipment when not in service.

This installation for 27 buses cost approximately \$3000, or a cost per bus of \$107. Since this was an experimental installation, the simplest construction details were used, such as wood frames for pits and french drains. It is estimated that construction of a more permanent nature, such as concrete pits with tile drains, might cost approximately \$200 per bus.

1943-1944 Experience

One season of heating has just been completed with the use of infra red heat and no starting difficulties were encountered throughout the winter in which there were 50 days below 20 deg. and temperatures encountered were as low as 2 deg. F. In fact the engines started better and required less choking than those stored in garages where the temperature averaged 35 to 40 deg. since it was possible to get heat directly on the carburetor and intake manifold.

The installation was complete and service started on Dec. 8, 1943, and operated whenever necessary until April 6, 1944. There were 80 days when heat was required in the total of 120 days in this period. An average of 20 buses per day were stored outside and heated an average of 10 hours per day.

The cost of power for the season was \$447.67 or \$0.28 per bus per day of heating. This figure is based on a current charge including demand of \$0.0232 per kw. while current is used and a 6 months standby charge of \$12.30 per month.

Excessive lamp breakage was experienced in the initial period of installation, since it was found that the type R-40 Drying Lamp used was not satisfactory for outdoor operation without protection which will prevent cold fluids from striking the hot lamp.

(TURN TO PAGE 240, PLEASE)

Heat Applied to Bus Engine Cooled to Storage Temperatures

Storage Temperature	Capacity Required	Time Required to Obtain Starting Temperature
—10°F.	3 Kw.	4 hr.
0°F.	2 Kw.	4 hr.
10°F.	1 Kw.	6 hr.
20°F.	1 Kw.	2 hr.

Heat Applied to Bus Engine to Retard Radiation From Operating Temperature

Storage Temperature	Capacity Required	Time Required to Balance Above Starting Temperature
—10°F.	2 Kw.	6 hr.
0°F.	1 Kw.	8 hr.
10°F.	1 Kw.	6 hr.
20°F.	1 Kw.	2 hr.



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Randolph "4" speeds your truck and garage fire defense. Kills gasoline, oil, grease, auto, electric fires —*instantly!* Hits the blaze before damage is done.

Mobilize against fire with Randolph "4". For prompt service and complete details, call your nearest supplier, or write—

ONE HAND ACTION! FOR TRUCKS, CARS, GARAGES

Just a touch of the thumb . . . and carbon dioxide gas nips the blaze! There's no damage, no mess to clean. It does a neat, fast job. Will not deteriorate or freeze.

Randolph Laboratories INC.

8 EAST KINZIE STREET • CHICAGO 11, ILLINOIS

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loads**

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days**

**Full
PROFITS**

A Perfection Type 100 Series Dump Body and a Perfection 615, 715, 720 or 720-P Hydraulic Hoist make a unit that can be relied upon for continuous, low-cost, efficient service every day, the year through. Built for today's tough jobs — for outstanding workability and dependability—you get full capacity pay loads every trip.

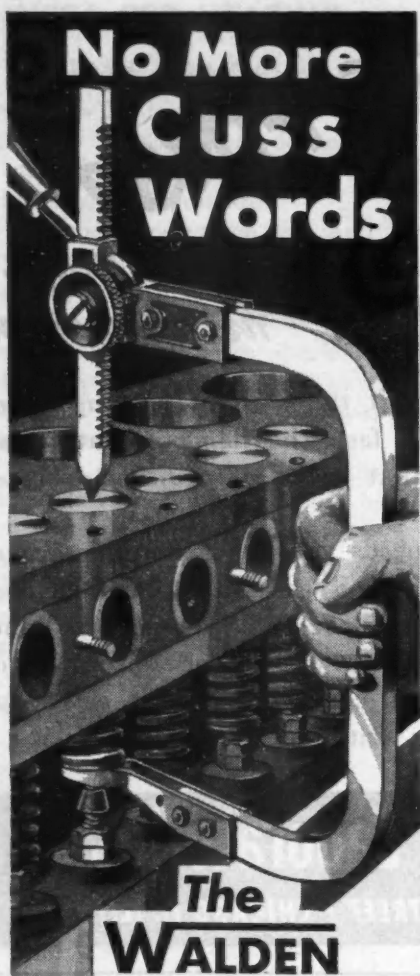
Write for Bulletins and prices on Hydraulic Hoists — Steel Dump Bodies — Platform Stake Bodies — Steel Express Bodies—Public Utility Bodies—Public Service Bodies — Hand Hoist Dump Bodies — Gravity Dump Bodies.

THE PERFECTION STEEL BODY COMPANY, GALION, OHIO

PERFECTION

TRUCK BODIES AND HOISTS





No More Cuss Words

**The
WALDEN
WORCESTER
Valve Lifter
with Friction Clutch
and Ratchet mo-
tion holds the
Spring in a positive
grip for removing
or replacing, leav-
ing hands free for
adjusting
Extra Jaws to fit
all cars . . . HEAVY
DUTY LIFTER for
Trucks and Diesel
Engines**

Ask your Jobber for this and
other **WALDEN WORCESTER**
Automotive Tools

Send for Catalog No.
141 picturing a full line
of Automobile, Aircraft
and Radio Tools.

**WALDEN
WORCESTER
WRENCHES**

STEVENS WALDEN, INC.
468 SHREWSBURY STREET
WORCESTER, MASSACHUSETTS

INFRA RED HEATING

(CONTINUED FROM PAGE 238)

Hard glass lamps were tried and proved satisfactory. It is expected that in the future the type R-40 lamp will be available in hard glass. Experiments conducted with hard glass shields over the type R-40 lamp have proven satisfactory from a protection standpoint but reduce the efficiency approximately six per cent.

Checks were made throughout the winter to determine the engine temperatures being maintained. It was found that with the outside temperature of 3 deg. F., a crankcase temperature of 85 deg. and a cylinder wall temperature of 50 deg. was maintained. A subsequent check made when the outside temperature was 15 deg. F., a crankcase temperature of 115 deg. and a cylinder wall temperature of 70 deg. was maintained.

It is apparent that the cost of heating with infra red heat is considerably lower than heating by idling the engines considering the cost of the gasoline, labor for starting and stopping the engines and the wear on vital engine parts due to the dilution of the lubricant caused by idling operation.

It is estimated that approximately 5000 gal. of gasoline was saved in this operation as well as approximately 5000 engine operating hours at a time when these items are most important.

It is recognized that the heating of engines only does not adequately cover the needs of bus heating in the colder climates where the effect of the cold on transmissions, differentials, wheel bearings, etc. are an equally serious problem.

This design of heating was developed for the under floor engine and lends itself well to engines in this location. No attempt to heat the
(TURN TO PAGE 242, PLEASE)

CLASSIFIED ADVERTISEMENT

FOR SALE

UNIVERSAL TOOLS: DANDY 10 Piece Set: BRAKE-SPRING Pliers, CON-ROD Socket, CEE-TEE Pliers, Carburetor JET WRENCH, CHANNEL LOCK PLIERS, Brake Adjusting Star-NUT Wrench, Diagonal Cutters, NEEDLE-NOSE Pliers, Screwdriver, Vice-Grips. \$19.85 Remit with Order Today! Other Tools Needed? REMEMBER: "We have it, Can get it, or it isn't made." DEALERS TOOL SUPPLY, 1527 Grand, CCJ, Kansas City, Mo.



America's leading bus, cab
and truck fleets **BATTLESLUGGERS**
with the nation's
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**Whiz
MOTOR RHYTHM**

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LEADER IN MAINTENANCE CHEMICALS

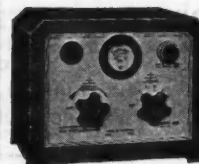
AUTOPULSE ELECTRIC FUEL PUMP

- Uninterrupted Schedules
- Instant Starting
- Greater Economy
- No Vapor Lock
- Added Protection



AUTOPULSE CORP., DETROIT

VALLEY CHARGERS HAVE Gone To War



For the Duration . . . we
will not be able to supply
Valley Chargers to our
many customers and pro-
perts because our war pro-
duction demands, otherwise
take up our entire facilities

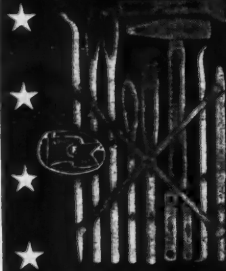
Remember Valley Chargers . . . when we can again
supply you with these simple, efficient and economical
battery-charging units.



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KEEP AMERICA'S KEY TRANSPORTATION
ROLLING!



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TIRE
TOOLS**

REG. U. S. PATENT OFFICE

SEE YOUR
LOCAL JOBBER
OR WRITE FOR
ILLUSTRATED
LITERATURE

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KOETHERIZING

The one best way to restore
collapsed pistons to orig-
inal factory fit.

Every pulled piston should
be Koetherized.

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You can get the

"KING" MT-695

NOW NO PRIORITY



We can give you IMMEDIATE DELIVERY of the "KING" MT-695 WITHOUT PRIORITY from either Jobbers or Dealers — there is no red tape of any kind. We have special permission from the WPB to sell the "KING" MT-695 — this applies only to the MT-695. It is a complete ignition and motor analyzer and will enable you to locate trouble accurately and quickly. We can supply other "KING" Testing Equipment and Battery Chargers, within our quota limitations, on WPB Form 547 or PDIA. You can buy the "KING" MT-695 IMMEDIATELY WITHOUT PRIORITY. See your "KING" Jobber.

"KING" MT-695

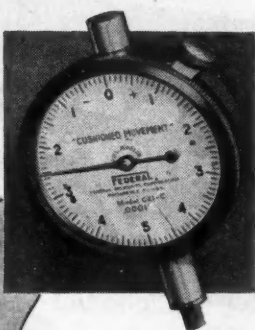
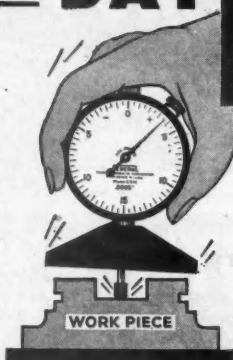
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The ELECTRIC HEAT CONTROL Co.

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GOOD "KING" PRODUCTS SINCE 1914

40,000 SHOCKS per DAY



are softened in this **FEDERAL CUSHIONED MOVEMENT DIAL INDICATOR**

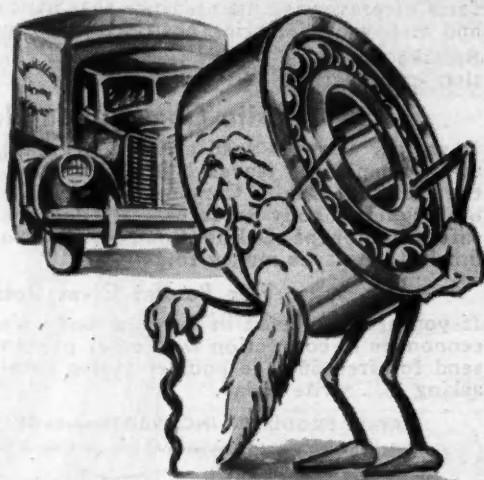
After every other type of shock-protected Dial Indicator had been tried on the job the Federal Cushioned Movement Indicator stood the abuse head and shoulders above the others. They are built to take it. If you have gaging requirements where the Dial Indicator must stand abuse try a Federal Cushioned Movement Indicator. Ask our representative about it, or write to —

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FEDERAL

PRECISION MEASURING INSTRUMENTS

TRUCKS are only as young as their BEARINGS



Lengthen Bearing Life with Lisle Magnetic Plugs

If you looked at the lubricants in your trucks under a magnifying glass — you would see thousands of tiny, razor-sharp particles — metal that has broken loose, through normal wear. These abrasive particles grind away at bearings and gears . . . shortening the life of your trucks.

Prevent This Damage

Replace ordinary drain plugs with Lisle Magnetic Plugs. A powerful, permanent magnet in each Lisle Plug contacts the oil or grease — pulls out the sharp, jagged cuttings before damage occurs. Lisle Plugs are low in cost — effective for 10 years or more. Made in sizes for all crankcase, transmission, and rear axle housings. Send today for illustrated literature and FREE sample to test in your trucks. See for yourself how this magnetic protection cuts wear, and lengthens truck life. Write today.

LISLE CORPORATION
Box 1617 Clarinda, Iowa



Lisle Magnetic DRAIN PLUGS



Wash Car and Truck Bodies This Quick, Low-Cost Way!

Making your original car and truck finishes last longer is one form of preventive maintenance that pays dividends in both time and money by deferring costly, time-consuming refinishing. So take advantage of this tip . . . wash your cars and trucks with that quick-acting, **SAFE** material . . .

Oakite Composition No. 70

It rapidly removes road grime and grease, does it easily, rinses away completely, leaves **NO STREAKS**. Equally important is the fact that Oakite Composition No. 70 does not harm painted or lacquered body surfaces . . . does not affect colors. This safety factor of Oakite Composition No. 70 prolongs life of finishes . . . saves money for you.

Free Booklet Gives Details!

If you are interested in low-cost body washing and establishing economies in connection with other preventive maintenance jobs, send for free 36-page booklet giving details. It's yours for the asking . . . write today.

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Technical Service Representatives in All Principal Cities of the United States and Canada

OAKITE

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FOR EVERY CLEANING REQUIREMENT

Only 1 Dual-Spiral DOES THE WORK OF 6 CONVENTIONAL REAMERS

The unusually large expansion range (.035" to .080") of the Lempco Dual-Spiral Hi-Speed Reamer enables only a few to service a great number of different truck models. Right and left hand flutes spiral in opposite directions simultaneously shearing mirror-smooth finishes. Removable blade segments easily resharpened. Eliminates honing. Long pilots available for alignment jobs. Low-cost, efficient reamer drives also available. Good delivery.

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IGNITION SYSTEMS

IN FIGHTING TRIM

REPAIR
When Possible

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Where Necessary

● NIEHOFF Products are dependable in every detail. They assure quicker starting, smoother acceleration, better gas and oil mileage and longer service. NIEHOFF Ignition Parts, Magneto Parts, Starter and Generator Brushes and Hydraulic Brake Parts are available through a national network of NIEHOFF Jobbers.

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4925 Lawrence Ave., Chicago 30, Ill.
Branch: 1342 S. Flower St., Los Angeles 15, Calif.

NIEHOFF

INFRA RED HEATING

(CONTINUED FROM PAGE 240)

cooling system has been made and alcohol was used in the cooling system to protect the radiator and heaters.

This form of heating should be attractive only to those operators in milder climates where indoor storage would only be necessary for short periods during the winter and where the temperature does not remain low for protracted periods during the winter.

END

(Please resume your reading on P. 52)

New Miley Brake Chart

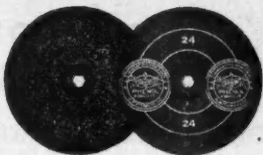
L. J. Miley Co., Inc., announces release of the new Miley Brake Shoe Chart.

This revised chart lists nearly all passenger cars and commercial trucks on the road with the correct unlined shoe and recommended lined shoe sets for each. The chart includes detailed section drawings of each shoe.

This chart may be obtained free on request through Miley jobbers or salesmen.

SIoux Phenol Abrasive Discs

not only cut FASTER and with less effort—but they stay "as COOL as a cucumber" even after long punishing service. They're flexible, tough, long-lasting, non-loading—due to the Resin Bond-Tempered Aluminum Oxide grain and moisture proof fibre back.



Your Jobber Sells Them
ALBERTSON & CO., Inc.
Sioux City, Iowa, U.S.A.
STANDARD THE WORLD OVER

Available

The Original 100% Unbreakable Filler
**BISHMAN RUBBERJUG
BATTERY FILLER**



Here is the jug that won its popularity through "Utility." Flexible. Saves hydrometers. Not affected by freezing. Lasts a lifetime. Compact—light—handy—evenly balanced. Hose easily replaced. Only 8 1/2" high—holds about a gallon. Has many other desirable features.

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Minneapolis 15, Minn.

Precision Built
INTO EVERY
MARVEL-SCHLEBLER CARBURETER
MARVEL-SCHLEBLER CARBURETER DIV.
BORG-WARNER CORP.
FLINT 2, MICHIGAN

Flare

**HYDRAULIC
BRAKE FLUIDS**

- Commercial car maintenance men who know brakes best, specify FLARE HYDRAULIC BRAKE FLUIDS... blend perfectly with all original equipment and other first quality brake fluids.
- Laboratory and highway tests prove FLARE is tops in quality. Available in flit type and shop size cans.
- Ask your wholesaler, or write.



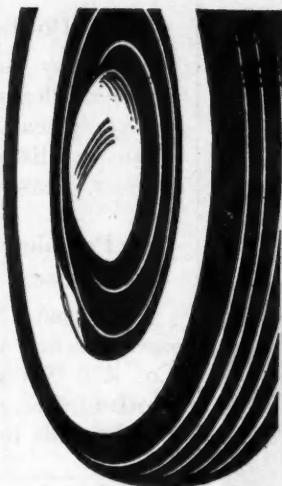
FLARE LABORATORIES THE BELL CO., INC.
DIVISION OF
1858 W. KINZIE STREET, CHICAGO, ILL. ESTABLISHED 1920



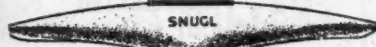
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ALMETAL JOBBERS CAN SOLVE YOUR UNIVERSAL JOINT AND DRIVE SHAFT PROBLEMS. CONSULT THEM FOR HELPFUL ASSISTANCE.

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SNUGL FAD-A-WAY
AUTOMOTIVE
WHEEL BALANCING WEIGHTS
TRUCKS • BUSES • PASS. CARS



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MID-WESTERN AUTO PARTS
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Rearview MIRRORS
For car, truck, bus or plane.
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QUALITY BUILT
SINCE 1907

HEAVY DUTY FOUR AND SIX WHEEL CHASSIS
FOR ON OR OFF-THE-HIGHWAY OPERATIONS.
GASOLINE AND DIESEL POWERED
CHAIN DRIVE - - - ENCLOSED DRIVE

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In doing a job on the home front and every fighting front, their dependability has been proven for over a quarter of a century. Their Heavy Duty Construction is doing the job expected of them.

Only the best is good enough for Uncle Sam.



A few of COLE-HERSEE PRODUCTS

Dash Lamps
Dash Switches
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Door Switches
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Cole-Hersee Company

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SPEED UP WORK . . . with a *Kleer-Flo* PARTS CLEANER

Here's quick, safe, efficient cleaning of parts and tools. Avoids loss of small parts. Filters and conserves solvent



— patented pump maintains constant flow. Safety link closes lid at 160° — reduces fire hazard, lowers insurance rates.

Kleer-Flo
SOLVENT

Specially prepared fast-drying.

Size 24 x 36"
Capacity 20 gal.
Painted green

ASK YOUR JOBBER
or write for details.

PRACTICAL PRODUCTS CO.
2632 Nicollet Ave. Minneapolis 8, Minn.

THE
New



Tinnerman
HOSE CLAMP

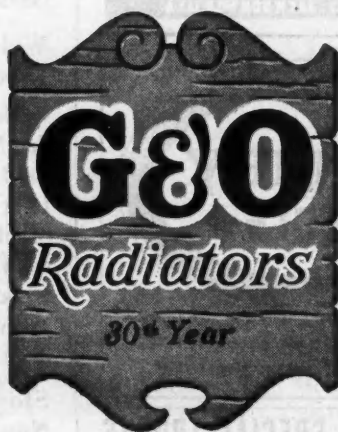


Attachment

Removal

● This new one piece hose clamp can be installed and removed *easier* and *faster* because of its simple but sturdy ratchet-type locking mechanism. It weighs less, has a lower profile, exerts uniform pressure and may be used over and over again. Approved by Army Air Forces and Navy Bureau of Aeronautics. Sizes from 1/2" O.D. up. *Write for information.*

TINNERMAN PRODUCTS, INC.
2020 Fulton Road • Cleveland 13, Ohio



They're Good

THE G & O MANUFACTURING CO.
NEW HAVEN CONNECTICUT

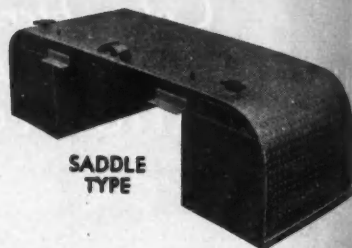


CYLINDER
TYPE

You must get the **MOST** from your present truck equipment to keep War Material moving.

Large capacity **SNYDER** (patented) Safety Fuel Tanks will eliminate unnecessary refueling delays. By the use of the Flame Guard Safety Valve (standard on all Snyder tanks) added protection is afforded against fire hazards. Capacities range from 28 to 50 gallons in the cylinder type; 75 to 125 gallons in the saddle type. Approved by the Underwriters' Laboratories, Inc.

Distributed in all principal cities. Write for descriptive literature.



SADDLE
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SNYDER MANUFACTURING Co. Dept. CC BUFFALO, N. Y.

INSTALL Bowman PLASTIC LENSES

And permanently solve your problem of lenses for all round type marker lamps—6 sizes, 2 1/4 to 3 1/2. **BOWMAN** are your best bet for they are **SHATTER PROOF** • **FLEXIBLE** • **COLOR FAST** • **WEATHER PROOF** • **ECONOMICAL**.

They have glass like transparency, are not affected by temperature changes—made in two colors, red and amber.

Contact your Jobber or write us direct.
BOWMAN AUTOMOTIVE PLASTICS COMPANY
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GEAR PULLERS



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tools

BUSHING REMOVERS
CREEPER CASTERS
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MACHINE PRODUCTS, INC.
103 WATER ST., JACKSON, NICH. U.S.A.



Bonney Forge & Tool Works
Allentown, Pa.

STANDARD & SPECIAL TRUCKS ANY SIZE OR TYPE



AVAILABLE TRUCK COMPANY
2501 Elston Ave., Chicago 47, Illinois

CCJ NEWSCAST

(CONTINUED FROM PAGE 244)

New Rubber Compounding Process Developed By Firestone

A new rubber compounding process developed to reduce the danger of heat-failure of heavy-duty synthetic rubber tires and thus solve one of the industry's major problems was announced by John W. Thomas, Chairman of The Firestone Tire and Rubber Co.

Magnesium sulphate, sold in thousands of drug stores under the less technical name of epsom salts, is the key material in the new process.

Fruehauf Buys Reliance Works From Allis-Chalmers

Fruehauf Trailer Co., has purchased the old Reliance works of the Allis-Chalmers Mfg. Co. at Milwaukee, Wis. The 10 1/2 acre site is adjacent to the Milwaukee Road tracks.

Weld Kit Contains Eleven Types Of Rods

The Weld-All electric kit, made by the Marquette Mfg. Co., Inc., of St. Paul, contains a generous supply of 11 types of welding rods to cover practically the entire field of electric welding. A rod chart and instruction book giving complete data on the proper use of each type of electrode is included with each kit.

Stover Self-Locking Nut Now Made in 14 Sizes

The Stover self-locking nut, made by the Stover Lock Nut and Machine Corp., Easton, Pa., and designed to retain its grip despite rigorous vibration, now is being made in 14 sizes—from 1/4 in. to 1.5 in., with national coarse or national fine thread.

This nut acts as a powerful spring which clutches the bolt and will not shake off. This result is achieved by
(TURN TO PAGE 248, PLEASE)

The
Ring
for
These
Times



WAUSAU OIL-SAVR Piston Rings

The Free Running Ring with the
Safety Center Unit

See your Jobber or write
WAUSAU MOTOR PARTS COMPANY
2400 Harrison Blvd., Wausau, Wis.

KEEP YOUR VEHICLES MOVING ECONOMICALLY

with

HALL VALVE SERVICING EQUIPMENT

Ask Your Jobber or write
THE HALL MFG. CO.
TOLEDO, OHIO

WE'VE GOT THE ENEMY RUNNING BY KEEPING THE CARS AND TRUCKS ROLLING

Everything points to victory in '45'

Wohlert LANSING
CORPORATION MICHIGAN

Makers of Engineered Parts

MCKAY TRUCK CHAINS

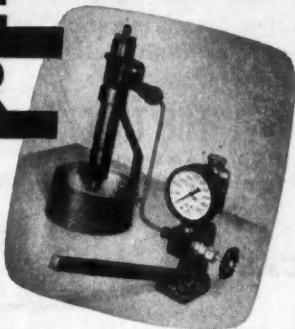
For double mileage, double economy, use the double-bar-reinforced McKay Multi-Grip Truck Chain!

THE MCKAY CO., PITTSBURGH, PA., York, Pa.



ADECO NOZZLE TESTER

FOR DIESEL ENGINES
AND HYDRAULIC DEVICES



KEEP DIESEL ENGINES RUNNING AT PEAK EFFICIENCY

With this sturdy, portable, light-weight Adeco Nozzle Tester, any mechanic can easily make quick, accurate tests on injector opening pressure, spray pattern, etc., and detect stuck needle valves and leakage around valve seats. Adeco advantages have made this America's most widely used nozzle tester. Tests both large and small injectors, on bench or engine. Avoids costly delays and possible damage to engine. Keeps diesels operating at peak efficiency.

Write for new illustrated bulletin.



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It's
DO-RAY
ALL THE
WAY

★
DO-RAY CERTIFIED Products pass specifications of S. A. E. and I. E. S. meeting all I. C. C. requirements.
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No. 70
GIANT-LITE
Ideal for trucks with rear doors extending full height of body. Angle bracket permits 4 mounting positions.

No. 1292
KNOBBY REFLEX
For trucks, busses or trailers—designed and constructed to withstand the severest abuse. White, amber, red or green.



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SAFETY LIGHTING AND REFLECTING EQUIPMENT



ONE OF A SERIES PORTRAYING THE "SPEED NUT FAMILY OF FASTENINGS"

"J" TYPE
SPEED NUT



Self-Retaining for BLIND LOCATION ASSEMBLY

Another SPEED NUT design to simplify and speed up blind location assembly and reduce costs. The "J" nut holds itself in place—eliminating the necessity of welding, riveting, or staking ordinary fasteners. Extrusion in lower leg snaps into hole to retain nut in perfect register. The "J" nut possesses surprising holding power, eliminates vibration loosening, and prevents damage to enamel, plastic or glass. Send your assembly details today and we'll rush samples.



THE BASIC PRINCIPLE
of Spring-Tension Lock is
Embedded in all Speed Nut Designs

TINNERMAN PRODUCTS, INC.
2020 Fulton Rd., Cleveland 13, Ohio

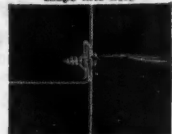
Speed Nuts

FASTEST THING IN FASTENINGS

Positioning "J" nut over hole



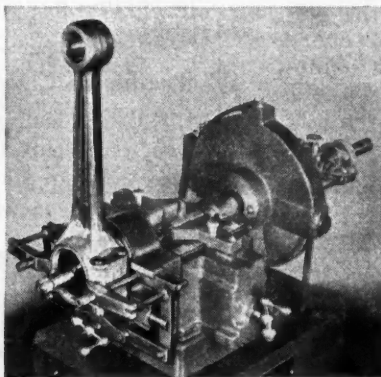
Extrusion on lower leg
snaps into hole



Drive the screw. Access to
opposite side unnecessary.

TOBIN-ARP MFG. CO. Rod Boring Attachment

Is Fast
Accurate
Compact



Bores semi-finished habbitted rods, inserts in the rod and the rod forging itself. Designed to fit our Shell Bearing Boring Machine. Convenient to use. Handles all rods up to and including R. D. 8 Caterpillar Diesel. For resizing V8 Ford rods quickly, it can't be beat.

Write for complete details on it, also ask for particulars on our Shell Bearing Boring Machine and Line Boring Machine.

TOBIN-ARP MFG. CO.

2845 Harriet Ave. S.

Minneapolis 8, Minn.

Mfg. by Allied
Equipment Co.
Detroit, Mich.



Thousands
in Use

CHAMPION Safety TANKS

The Tank You Will Want On All Your Trucks

With safety features that gain Underwriters' approval, a simplified mounting bracket and other exclusive advantages, this is the greatest tank value obtainable.

Patented Brackets mount tank on either side without drilling or welding. Built in measuring stick standard equipment. Exclusive Patented Four-Way Multi-Selector Tank Valve. Thousands of tanks already in use.

Distributed Nationally by **THE TRUCKSTELL CO.** 1672 Union Comm. Bldg.
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WRITE FOR LITERATURE AND NAME OF YOUR TRUCKSTELL DISTRIBUTOR



LINK-BELT ROLLER BEARINGS

Built to give free rolling service under heavy loading, they increase the efficiency and life of every type of automotive equipment. For front wheels, rear axles and differentials.

Made by makers of famous LINK-BELT Silverstreak Silent Timing Chain.

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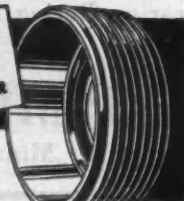
LINK-BELT COMPANY
519 N. Holmes Ave., Indianapolis, Ind.
Warehouses in all principal trading centers

MEEHANITE

The Ideal Metal for BRAKE DRUMS

RESISTS HEAT, SCORING
GIVES SMOOTHER
BRAKING ACTION
REDUCES LINING-WEAR

Developed in cooperation
with General Foundry &
Mfg. Co. of Flint, Mich.



CCJ NEWSCAST

(CONTINUED FROM PAGE 246)

subjecting what appears to be an ordinary nut to the Stover compressing process, under which the upper part of the threaded portion is made slightly elliptical while the lower threaded portion remains circular.

This one-piece nut, requiring no insets, washers or double nuts, is precision faced, and made so that any regular wrench will fit it. It can be screwed on a normal threaded bolt about half way, then requires use of a wrench. Once the threads are entirely on the bolt, the nut locks itself automatically at any desired point by utilizing the natural elasticity of the metal.

The nut can be used over and over again without appreciable loss of efficiency. Lubricants and changing temperatures do not interfere with its holding power.

Traffic Toll Down for October

A traffic death toll of 2120 for October represents a saving of 470 lives when compared with the toll of 2590 for the same month last year, according to a report from the National Safety Council.

W. C. Schumacher Stresses Service

"Service," said W. C. Schumacher, manager of sales of International Harvester Co.'s motor truck division, "must help more now than ever as the war effort is intensified and the shortage of trucks, parts, tires and trained drivers continues to be acute.

"Under the supervision of D. B. Erminger," continued Mr. Schumacher, "our service section has just

(TURN TO PAGE 250, PLEASE)

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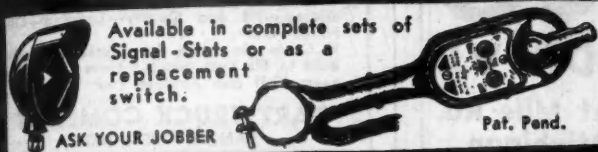
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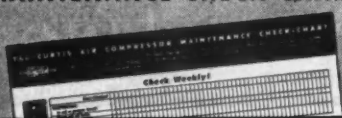


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CCJ NEWSCAST

(CONTINUED FROM PAGE 248)

held the first of a new series of quarterly conferences of district service travelers and general office sales, manufacturing and engineering executives. These conferences will prove of great ultimate benefit to International truck dealers and owners."

A four-day series of talks and round-table discussions in Chicago was followed by visits to the company's motor truck division plants at Indianapolis and Fort Wayne, Ind., and Springfield, Ohio.

Signs \$3 Billion Road Bill

On Dec. 20 the President signed the postwar highway construction bill previously passed by Congress. It called for an expenditure of \$1,500,000,000 at the rate of \$500,000,000 a year for each of the first three successive postwar fiscal years.



A. K. Tice, of the sales department, Fruehauf Trailer Co., recently was promoted to vice president and director of sales.

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**HEAVY DUTY FOR
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(CONTINUED FROM PAGE 250)

**WPB Moves For
Increase in Tire Output**

The heavy-duty truck tire situation is now more critical than it was three months ago. Present wear on military tires in Europe is so great that WPB has declared the tire production program to be the most critical of the entire munitions program, and has given it top urgency rating.

To meet the critical need for military tires, WPB is moving for an increase of one million units per quarter through use construction of new facilities which may cost up to 100 million dollars. Each tire manufacturer has been asked to inform WPB what additional equipment is necessary to remove production bottlenecks.



H. H. Whittingham, left, formerly vice-president in charge of engineering of the Norge and Detroit Gear Aircraft Parts divisions of the Borg-Warner Corp., has been appointed vice-president and manager of the latter unit. Ira H. Reindel, right, chief engineer for Norge, has been promoted to director of Norge engineering

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6343 SO. LARAMIE AVENUE, CHICAGO 38, ILL.

Federal Appoints National

Appointment of the National Motor Sales Co. as Federal truck distributors for San Diego, Cal., has been announced by Carl Loud, Federal Motor Truck Co. sales manager. Ed Porter, manager of the National Motor Sales Co., has been identified with the trucking industry for many years on the west coast, and was formerly manager of the Moreland Motor Truck Co. of El Centro, Cal.

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Gives Driver a
Feeling of Security!*

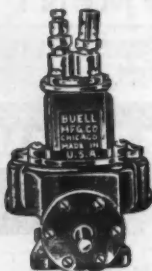


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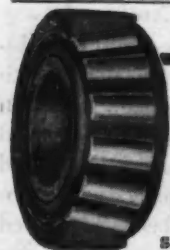
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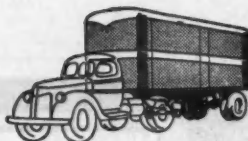
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Rogers Elected ICC Chairman

John L. Rogers has been elected chairman of the Interstate Commerce Commission to fill the unexpired 1945 term of W. J. Patterson, who continues as a commissioner.

Burke Named Manager Chevrolet Truck Dept.

John W. Burke has been appointed manager of the Chevrolet commercial and truck department, to succeed W. E. Fish, recently advanced to the position of assistant general sales manager of the Chevrolet Motor Division, General Motors Corp.

Mr. Burke, who has been associated with Chevrolet truck activities for fourteen years, is a native of Wisconsin. After gaining wide experience in the transportation field, both with railroad companies and truck manufacturers, he joined Chevrolet in 1931 as regional truck manager at Flint. Since 1938, he has been with the Detroit central office truck department, first in charge of local fleet business, next as assistant manager of the department.

For the last two years Mr. Burke has served as government headquarters procurement manager, with offices at Washington and Detroit, co-operating with government agencies to expedite the distribution of Chevrolet trucks throughout the United States.

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Save space! Open upward!
Coil out of way. Always
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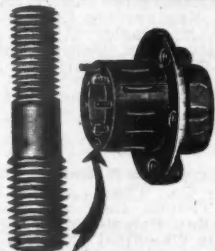
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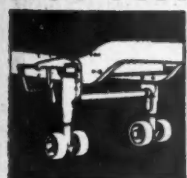
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GREASE RETAINERS

(CONTINUED FROM PAGE 252)

Tire Certificates Dated Mar. 31 and Earlier Invalidated

Tire ration certificates dated Mar. 31, 1944, and earlier were invalidated on Dec. 23 by the Office of Price Administration. Any one having a certificate invalidated by this action can reapply at his local War Price and Rationing Board and reestablish his eligibility.

The OPA also revoked the requirement that an applicant for tires for a commercial vehicle present the Certificate of War Necessity at the time he applies for tires. The Rationing Board, however, may still require proof of the existence of a valid master Certificate of War Necessity.

Suggests Joint Session of Vehicle and Highway Engineers

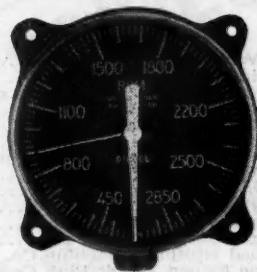
Speaking before traffic and transportation groups in various sections of the country, L. C. Allman, vice president, Fruehauf Trailer Co., suggested that cooperation between the automotive engineers who design our motor vehicles and the highway engineers who design our roads, would make for efficiency and progress.

"A joint engineering conference between the two engineering bodies might well bring forth results of tremendous importance," he stated.

"Certainly a wonderful agenda could be prepared on weight distribution, load and length laws, highway width, speed control, bridge requirements and a number of other vital subjects. A thorough joint discussion of these and other subjects should point the way toward vehicles more suited for our roads, roads which permit full advantage to be taken of advanced automotive engineering and above all, more efficient motor transport to serve America."

(TURN TO PAGE 254, PLEASE)

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